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Requeening As You Go

By Charles S. Engle

THE associate editor of the American Bee Journal once visited me during honey harvest when I was located in western Iowa. He noticed that the top story on a number of the hives contained nuclei headed by young queens, while there was also a laying queen in the brood chamber below. I explained the reason for having queens in the top as well as the bottom of the hives, and now he informs me that there is considerable interest regarding the rearing of queens in the top story of a hive, and asks me to describe my method.

While keeping bees in Iowa, I used the ten-frame hive, with full-depth bodies for supers. The queens were

allowed and encouraged to use two bodies for a brood chamber until the bees began to crowd the queen by storing new nectar in all available cells. At this time all such colonies were worked by a modified method of the Demaree system, in preparation of the main honeyflow. No attention was given the queen-cells usually built in the upper stories. I know that some apiarists claim that unless all such cells are destroyed the bees will be sure to swarm. Most of my covers were of the flat reversible type, and in July I pushed the covers forward so that they rested on the back cleats and allowed better ventilation. Virgins from the queen-cells used these openings for flight holes. In apiaries located in orchards or among trees many of the young queens would mate and start to lay in the upper stories, while there was always a much smaller number of such queens in apiaries located in the open. The young queens evidently became confused and were killed when they attempted to enter the wrong hives.

Unless I removed the young queens soon after they began to lay, the bees devoted their energies towards brood rearing instead of storing much honey in the upper stories. When I knew that the queen below was old or below par, I would take the young queen from the super, after she had established a fair brood nest, and shake her, together with the bees from several of the combs, in front of the entrance of the lower brood chamber, so she and her attendants would enter. I never knew of such a queen failing to be accepted and superseding the old queen. However, many times the bees would rear a young queen in the brood chamber while rearing one in the upper story. I found this out when looking to see what kind of a queen was in the brood chamber, before I decided to place the young queen from the top of the hive into the brood chamber.

The beekeeper never knows which colonies will build queen-cells and produce laying queens under such management. However, queen-cells can be placed in the supers of any colonies that the apiarist desires to requeen, with a certainty that some of them will produce laying queens.

In order to know just where the young queen is, it is a good plan to place another excluder under the top story when placing brood and cells there. The queen will then have to confine her laying to the one story.

Many times I have found some of my best colonies with failing queens shortly after the beginning of the



One way to do it. B, brood; S, supers; N, nucleus above an excluder, as described in the text.



A nucleus was put above, on this hive, and later united. It was by far the best producing colony.

honeyflow, or good queens have been accidentally killed at that time. The loss of the queen at such a time means that the colony will store little surplus unless successfully requeened at once, and such colonies do not usually accept caged queens from the mails.

To meet such an emergency, I try to keep some young queens in nuclei in each apiary. When keeping bees in Langstroth hives I requeened colonies under such circumstances by placing several thicknesses of newspaper over the top story and an excluder on the paper. I then placed a nucleus on the excluder and raised the cover for ventilation. In a week or ten days the lower brood chamber was examined for queen-cells, which were destroyed, and the combs of brood with queen and bees, from the nucleus above, were exchanged for combs in the brood chamber. The illustration shows a hive that has a nucleus on the top of it. The brood chamber B; the two supers S; on top of the excluder is the nucleus N. The cover is raised to afford the bees ventilation and a top entrance.

I still use a modification of this method, but since I no longer use queen excluders I place an inner cover, with the bee escape hole opened enough to permit a bee to pass through, over the paper and a nucleus placed on top of it. The hive body containing the nucleus has a strip of shingle or a stick under one side, which furnishes the bees an entrance and ventilation.

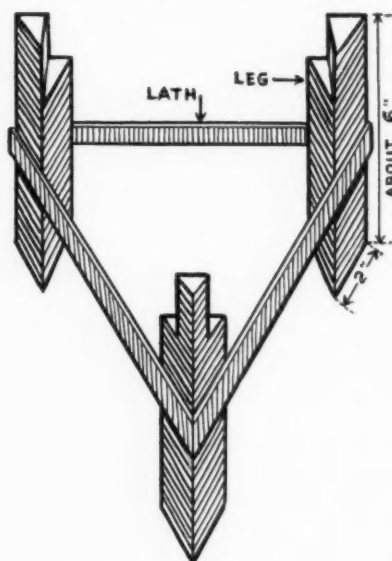
I no longer practice the Demaree system of swarm control, since I now keep bees in Modified Dadant hives and am able to produce honey without the use of queen excluders. Sometimes I do take combs of brood out of the brood chamber, when a colony is preparing to supersede their queen, and establish a nucleus and place on top of the hive, over the inner cover. Such a nucleus is given an entrance by slipping a strip of shingle under one side of the hive body, so that the entrance will be at the back of the hive. If the bees succeed in producing a laying queen, I generally add another comb of emerging brood to the nucleus and open the hole in the inner cover wide enough for a bee to pass through.

While the old queen keeps up her laying in the brood chamber below, though she usually lays less and less daily, the young queen and her attendants are establishing a good brood nest above. In time the two brood nests are combined, either by placing all of the combs of brood together in the lower body or by removing the inner cover from between them. The picture shows a hive in which a nucleus was established in an upper hive body in the spring of 1929. A close scrutiny will show the strip of shingle between the two hive

bodies, thus providing the bees with a back entrance. In this instance there were two strips of shingle, one on each side, with a thin piece of board nailed to the thick end of each, thus forming an alighting board at the entrance. Both queens were kept on the job in their separate brood chambers until the honeyflow became heavy; then the inner cover was removed, but the back entrance arrangement was left in place. This was by far my heaviest producing colony, and the three top supers are finished and above a ventilated escape board, ready to be hauled to the extracting plant.

North Dakota.

A Handy Stand for Supers



When work is to be done in the brood chamber after the supers have been put on, I always have trouble in finding a place to set the supers without mashing lots of bees. I will give directions of how I made a stand that is handy for setting supers on: Make three three-cornered legs about six inches long and sides two inches; then cut three lath four inches longer than the width of super inside; then cut three lath four inches longer than the width of super inside; nail legs to ends of lath, making a three-cornered stand; then set the super on ends of legs with end of super on one leg and sides of super on other two legs. Mark on ends of legs along outside of super and notch down in legs about an inch; this keeps the super from sliding off. By having three legs it will set solid, no difference if the ground is not level. If much weight is put on it, it should be braced from bottom ends of legs to lath.

Leslie Stubbs, Indiana.

"Hostile" or Fair?

A reader in Canada, A. S. Millard, of Ontario, calls us on the mat for what he calls our hostility to burning disease. His letter follows:

"Why? and why again are you so hostile to burning? You are like some magazines that are not against prohibition but never in one of their issues do they lack a boost somewhere for the joys of 'licker,' or a kick or a joke against the famous amendment.

"In your March number, on page 113, a novice with foulbrood popped up—one that doesn't know it. Did you tell him that he took the surest way of starting it up again?

"I would have you comfort him by saying that his hives that had disease wouldn't do well and wouldn't pay. Disease doesn't drop down the wind like measles, from nowhere. It is stopped for good by burning till brought in again from somewhere else. If beekeepers work with the inspectors, there is not going to be any 'elsewhere.'

"Also, rub it in that foulbrood can be secured in several other ways, but so often a mistake is made that foulbrood stays right with you. We have clean areas in Ontario and figure to enlarge them all the time, so don't hinder the inspectors, but insist on it that they be met with a glad hand as they come to help the beekeeper."

(This is in reply to the comment about hard luck which a beginner makes in the March number because the inspector found disease and burned up the outfit.

There are two sides to every issue. There is right on both sides and there is pretty apt to be wrong on both sides. This is a bee journal, not a police office, so we propose that both sides shall be heard when there is something constructive to say.

Some time ago we reaped a harvest of criticism for publishing comments sent by readers in California. It was claimed we gave only one side of the story, so we gave both sides and in generous amounts of space. The result was a flood. It would have taken two or three numbers of the Bee Journal to publish all the bitterness which came from just that one instance.

Now why can't we discuss this just as we discuss races of bees or the honey market — discussions which have brought interest to our pages for quite a long time without anyone becoming mad, either for or against?

We shall be glad to get anything constructive on either side of any question in beekeeping at any time, but please don't get mad about it.)

Why Honey Helps the Lady Grow Slender

By Lida Keck Wiggins

"IF you MUST have a sweet, eat honey!" This is a sentence in the general instructions given to users of a certain nationally known reducing bread.

Being one of those in constant need of keeping down this "too, too solid flesh," I was eating the bread and following its makers' instructions (a group of physicians, incidentally!).

Like most fat folks, I crave sweets more than anything else. Hence I took advantage of the permission of the bread makers to eat honey when I "must have a sweet!" I suppose with a will of iron I would have been able to resist even that delicious morsel under my tongue. But I am entirely human, and I was hungry for the sweets to which I had been accustomed, so I fled to the honey pots. Nor was I disappointed, for in the sixteen weeks allotted for the "fat cure" to be wrought by the bread I had lost forty pounds! Two years later, having lapsed (oh, yes, I am human all right!) and gained back a lot of the hated flesh, I decided to take the Hollywood eighteen-day diet. With this there is much citrus fruit used, especially grapefruit—a half one with a cup of coffee constituting one's breakfast every single morning. However, I remembered about my friend, the honey, and I sweetened the grapefruit and the oranges, whenever used, with at least a teaspoonful of the lovely syrup made from the hearts of flowers!

In this case, also, I succeeded in losing one pound per day, which was all I desired to lose!

Hence, being wholly unacquainted with any scientific data about the whys and wherefore, I concluded honey "helped me reduce."

Having stated this belief to the editor of the American Bee Journal, I was answered with a request to learn **why** honey should be on a reducing diet, and to learn this from scientific sources!

This request was reasonable, and so I began my research. At first the foundations of my house of faith seemed in danger of being pulled out from under it. A dietician and two doctors, to say nothing of a professor at the head of a honey research department in a college, all declared that as honey is a pure sweet naturally it would produce fat. A few moments of doubt, black and depressing, shadowed my spirit. Then, being a woman with all the feminine traits normally developed, I said to myself: "Well, the poet was correct when he said 'A woman convinced against her will is of the same opinion still.'"

So I began to use reason, to figure out the reasons why those doctors

who had sold me the reducing bread had told me to eat honey if I MUST have a sweet, and why, when I did eat it liberally, I still reduced forty pounds in sixteen weeks.

Then light began to dawn, especially as I had been given some very illuminating literature by the college professor.

First of all, and possibly last, no one ever eats as MUCH honey as he does cane or other fired sweets. Honey is so VERY sweet and satisfying (being a natural sweet and hence unadulterated) that it requires only a small amount of it to meet the cravings of any human body. This is such a truism that anyone can comprehend it. If I should eat half as much butter, for instance, as I now do, I should in consequence NOT gain by just that many ounces. So, if for the sake of argument we grant that honey WOULD create as much flesh as cane or beet sugar, if taken in the same amounts, we must on the other hand grant that since honey does **not** need to be taken in nearly so large amounts to produce the desired results, it does absolutely contribute to the general process of weight reduction!

This may not be considered a "scientific" conclusion. In truth it is not meant to be.

As a bit of an anti-climax or denouement, I might say that the fact that honey is a natural sweet, and hence needs no digesting process, it is an ideal food for invalids; also, as it is energy-producing it perhaps, as one of my scientific consultants assures me, "saved my life, as I was near the starvation limit when using the Hollywood diet."

For instance, I wrote to Mr. George Demuth, editor of "Gleanings in Bee Culture," who said:

"We are inclined to believe that the chief reason why honey is less fattening than other forms of sugar is that smaller amounts of honey usually satisfy the craving for sweets. This is readily illustrated in candy made from honey. One or two pieces of such candy usually satisfies, while candy made of glucose with its low sweetening power calls for considerably more before the sweet tooth has been satisfied. This is probably what the clergyman in St. Louis had in mind in describing honey as non-fattening."

"The sugar content of honey is almost wholly levulose and dextrose. In all honeys, so far as examined, levulose predominates, thus giving to honey its intense sweetness. Since these two sugars are monosaccharides, both sugars are ready to enter the blood stream immediately without the process of digestion. This is

the explanation of the almost immediate energy available when honey is taken into the system. Levulose is considered the finest of the sugars. In addition to these two sugars, honey contains various enzymes which may be of some importance in the diet, but not much is known concerning this. Honey also contains small amounts of mineral matter, which fact is often mentioned as an advantage of honey in the diet compared with highly refined and denatured sugar. Cane sugar or beet sugar must first be digested—that is, the molecules must be split into levulose and dextrose before assimilation can take place. For this reason, persons who suffer from gasses in the alimentary tract brought about by fermentation find relief when honey is substituted for sugar, since in the latter case honey is absorbed so quickly that fermentation will not take place."

I dropped into a store where honey candy is sold, and I found that customers have again and again assured the storekeeper that "two or three pieces of honey candy go as far as a whole box of the cane sugar variety."

Therefore, having found that less honey needs to be eaten than cane sugar in order to satisfy cravings for sweets; that WHEN taken honey provides energy to make up for other foods forbidden on reducing diets, and that at all times honey digests perfectly, or is predigested by Nature, I feel there is every reason in the world WHY the bread people say in their instructions to dieters: "If you MUST have a sweet, eat honey."

Queen Raised With Unsealed Brood Apt to Disappear

Bee books and other bee literature to the contrary notwithstanding, a queen reared in the presence of unsealed brood is very apt to disappear at mating time, often with a swarm. It sometimes occurs even with nuclei. The advice given to requeen by removing the old queen and giving a ripe cell, if followed, usually results in the loss of a swarm and good queen, followed by the development of a queen reared from cells started at the time the old queen was removed, or it may result in queenlessness. Loss of the first queen emerging nearly always occurs if conditions are favorable for swarming. This is not a mere guess, but is the result of careful observation and experiment during the last twenty-five years.

E. S. Miller, Indiana.



EDITORIAL

AMERICAN BEE JOURNAL

Swarming Fever

Some colonies are induced to swarm early because they have had the center of the brood chamber crowded early, sometimes only a comb of honey separating the brood nest from one or two nearly empty combs on the outer edge. Swarming may also be induced early by a few days of fair harvest and a day or two of rain, when the bees are forced to remain at home. The colonies thus induced to swarm early will rear queen-cells. It is not always a remedy to divide them. We have had a colony thus divided into three parts cast a swarm from each part.

A good way to prevent the swarming of such a colony is to change its location with that of a weak colony, or to remove most of its brood and give it to colonies which have been delayed in their breeding by winter losses. Usually, however, it does not pay to give brood to a weak colony, because its queen may be of low value. But if the queen is good, a colony helped in this way may prove quite efficient during the harvest. As a rule we should avoid removing brood from strong colonies, except in such emergencies.

In most instances the colonies which prepare to swarm early have old queens which they wish to supersede.

Cutting the Corners

With low prices for honey it becomes increasingly important to observe every short cut to reduced cost of production. If a better strain of bees will increase the average yield per colony by 10 per cent, requeening with this stock will pay big dividends on the cost.

Poor brood combs are expensive to the beekeeper through the rearing of too many drones. Replacing poor combs with full sheets of foundation will show marked improvement in the returns, and the beekeeper can make no better investment. New combs should be drawn above the brood nest during a good honeyflow. Combs built under such conditions are the best. You can judge the average beekeeper by the quality of his combs.

A few extra supers will often repay their entire cost within a few days during a good honeyflow. It is only the man who has plenty of supplies ready who saves all the honey during a good flow. When the flow is heavy a strong colony of bees will often fill three or more supers almost as quickly as they would fill one, and the extra honey supplies the profit. No man can measure the annual losses to American beekeepers through lack of sufficient supers to hold the crop.

Good stock, good combs and plenty of storage room are essential to successful beekeeping. A man with all these things often gets double the honey secured by his neighbor who neglects them.

The Extension Worker

We frequently hear complaint against the extension work, with the argument that more honey is produced than the market will take now and to make more beekeepers increases our marketing troubles.

The extension men do more to arouse interest than any other agencies, and the sum total of their efforts has a healthy effect on the markets. Without such organized efforts the demand for our product would decline as has been the case with apples.

According to the figures quoted on the editorial page of this Journal in the May issue, the per capita consumption of apples has declined from 107 pounds to 68 pounds, while the consumption of oranges has greatly increased. Orchards have been grubbed out to keep pace with the

decline in consumption, but still there is a surplus of apples. Without activity in an industry, demand for the product will soon fall off. While it is true that honey moves slowly and at low prices, this condition cannot be cured merely by slowing down production. We must fight for our markets, as the apple men have discovered. There are too many different kinds of sweets available for the public to bother about honey unless we constantly bring it to attention. This is not the time to boost for larger production, but normal activity always brings in new men to replace those who are dropping out.

Give Directions

Shippers of package bees should have printed directions giving details of their care to be sent with every package. Many purchasers are beginners, with little information about bees, and unnecessary losses are frequent. A case recently came to our attention where a fruit grower bought a number of orchard packages for pollination purposes. No directions were sent with the shipment and the buyer did not know how to manage them. With no beekeeper near to assist him, he was unable to give the bees proper attention and his loss was heavy as a result. He did not even understand the purpose of the cork in the flight hole at the end of the package.

Such losses do much to discourage buyers and retard the development of the live bee market.

Swarm Prevention

We want increase, of course, but we want it from our best producing stock, and yet we want as much honey as possible from this best stock. There is a way to do it; that is to prevent swarming as much as possible, then breed queens from our best stock and make artificial divisions, using for that purpose such colonies as would not make much surplus. To divide our less productive colonies and allow them to rear their own queens would make the increase from inferior stock, but if we rear queens from the brood of the best queens we may then divide the less profitable colonies with advantage.

However, to succeed in all this, we must avoid natural swarming. If our best colonies swarm, the increase in honey production will be light. So we must, as much as possible, prevent our best colonies from swarming.

One thing above all others is necessary to prevent swarming; it is to have plenty of room for the queen to lay, at all times, and plenty of room for the bees to store honey. That is why, with the shallow Langstroth frame, we often need to use two stories for breeding. With the deep Dadant or Quinby frame, the queen is not nearly so soon crowded for room to lay.

But that is not all. Other things are necessary. The colony must have as few drones as possible. A hive with three or four thousand drones will be almost sure to swarm, because of the inconvenience which those big, idle fellows cause to the bees, keeping the hive too warm in hot days and crowding the bees out of their way by their burly behavior every afternoon.

It is easy enough to keep the hive free from drones. It is simply to remove the drone-combs in the spring and replace them with worker comb. If we did not do that, the bees would probably build drone-combs again in the same spot, for the same reason that caused them to build them before.

As a matter of course, we must have one or two of our best colonies with plenty of drones, in order that the young queens may mate with males of the right breed. We will always find drones in every colony, even those

that we try to keep without drones, because there are always some corners where a little drone-comb will be found. What we aim to do is to prevent the excess of drones in the colonies which we wish to keep from swarming. We must likewise prevent their production as much as possible in the inferior colonies as well as in the colonies of our neighbor beekeepers, if they are of the common black bees. I remember that, in my young days, my father used to send me over to our neighbor beekeepers and offer to Italianize their bees at very low rates, so that we might not be annoyed by black drones within our range of queen-rearing.

Other matters to prevent swarming are important. For instance, we must shelter our hives from the sun, for they will be sure to swarm if the rays of the sun strike the hive in hot weather so as to compel the bees to cluster on the outside. We want our bees busy, so we do not wish to see them hanging out in front of the hive in clusters, or, as the French say, "making a beard" on the outside. We give all the ventilation we think is needed, even to lifting the hive in front, from its bottom board, as much as three or four inches. The sheltering and ventilating must be done early, for if the bees once find themselves crowded they will acquire the "swarming fever," and after that all our attempts at swarm prevention will be futile.

Another important thing to prevent swarming is to have young queens in our hives, queens not over two years old. When a queen gets old the bees plan to supersede her, by rearing another. This is likely to be done at swarming time, when the old queen is getting tired of laying eggs. The bees, noticing it, prepare queen-cells, and, when these are about ready to emerge, the old queen, seeing that they propose to have another in her place, becomes angry and leaves the hive with a willing swarm.

It is easy to recognize when the queen becomes tired of laying. It is when she seeks drone-cells in which to lay, in preference to worker-cells. Young queens rarely become tired of laying worker eggs. But it would appear that the motion of the spermatheca which fertilizes the egg and causes it to become a worker tires an old queen, so that she seeks larger cells where the spermatheca will not need to act, and thus rests herself from too assiduous labor. The worker bees appear to understand this demand of the queen, for they will purposely leave drone-cells without honey so that the queen may have the use of them. It was Dr. C. C. Miller who first called this matter to my attention. I had noticed drone-cells empty, surrounded with worker-cells filled with honey, but had not given the matter any thought. Since that time I have carefully kept drone-cells out of the supers, for fear that the queens would use them.

If we have old queens, or queens which for some reason are tired of laying, the colonies containing those queens will show a decided tendency to swarm.

The above causes for swarming are the main ones. We could not guarantee absolutely that bees will not swarm if they are properly attended to, but we are certain that in such a case the amount of swarming will be reduced to a minimum. Then we can make our increase artificially with the very best queens that may be raised and harvest the largest possible crop of honey.

Result of the Small Hive

The effort of supply dealers to make a hive which could be sold at a low price has resulted in the destruction of bees as a sideline on the farms in many of the northern states. Forty years ago bees were kept on the farms of Iowa almost as generally as were hens. The hives in common use had deep frames which were well suited to let-alone methods. When the eight-frame hive came into use it met with a popular sale simply because it was low in price.

Those who knew nothing of beekeeping except to hive swarms and put on supers were poorly equipped to manage bees in such hives. The common farm practice was to remove the supers and take all the honey which they contained, regardless of the needs of the bees. In hives with the deep frames the bees usually had enough honey in the brood chamber to carry them through the winter, but with the eight-frame Langstroth hive it too often

happened that all the honey was in the supers. The beekeeper accordingly found himself with empty hives the following spring. So commonly did this happen that the bees rapidly disappeared from farms where they were not given proper care. The lack of winter stores through the use of small hives has resulted in making honey production into a specialty instead of a farm sideline as it once was. Thus it came about that the supply manufacturers, through pushing a hive which required expert attention, largely destroyed the markets for their own goods. Even with large hives it is sometimes necessary to crowd the bees to get enough honey in the brood chamber for winter.

Probably most beekeepers will say that this result is fortunate, since it has removed the careless beekeeper from many communities. The fact that every farm raises chickens has not injured the poultry specialist, but on the contrary the large production has resulted in a stabilized market. Perhaps this might have happened in the beekeeping industry if old-time conditions had continued. Perhaps the public would be eating honey instead of so much sugar.

The Bee Magazines

There is much of interest in the list of bee magazines in the Miller Memorial Library recently published by Professor Wilson. The American Bee Journal was the first bee magazine in the English language. It was founded by Samuel Wagner in 1861. Since that time more than a hundred others have attempted to gain public support, but most of them have been short lived. Just how many such magazines have been started in the United States and Canada is probably unknown. One or more copies of 190 different bee publications are on file in the Miller Library, and this is probably the most extensive collection now in existence. Complete files are available in only a few cases. Several such magazines are known to have been started of which no copies are now available.

This long list of extinct publications shows much interest in beekeeping, but in view of the large number of magazines started it is rather surprising that so few have survived.

Telling the World

The word "honey" carries with it a suggestion of pleasing quality unequalled by any other word in the English language. Of late years the word "peach" is approaching it in popularity. Notwithstanding the fact that our product is associated in the public mind with all that is fine and sweet and wholesome, our product is declining in popularity. One after another the manufactured sweets are replacing honey. It is our own fault that this is so. Our industry has failed to keep pace with modern progress.

Perhaps we may learn something from the apple growers, who are just beginning to wake up to the fact that their markets have been invaded by other fruits which are vigorously advertised. One of the cleverest undertakings in the way of arousing public interest is the recent Shenandoah Valley Apple Blossom Festival.

With Winchester, Virginia, as headquarters, the ancient city of Winchester, England, for which it was named, was invited to send a young lady to serve as queen of the festival. The young lady selected was the daughter of a soldier killed in the world war, and on her arrival in this country she was given every attention which might be extended to a real queen. With a coronation in which the queen was accompanied by princesses, maids of honor, pages, heralds and guards, the affair took on a very impressive aspect. The ceremony was similar to that when kings were crowned in the English capital in days of old. With grand parades, costumes, bands and ten thousand marching school children, it was an event well calculated to attract wide attention even in this day of big affairs. It is estimated that 150,000 people were attracted to Winchester, and unmeasured columns of newspaper space was given to the event.

If honey is to regain its former place in public interest, beekeepers must do something to remind the world that it is still as sweet as ever.

Is the Honeybee Responsible for the Spread of Fireblight Germs?

I. Current Ideas Concerning the Initiation and Spread of Blight

Dr. H. R. Rosen, University of Arkansas

FORTY years ago it was experimentally shown by Dr. M. B. Waite that the honeybee is capable of spreading the germs responsible for that disastrous scourge known as fire blight of pears and apples. In spite of this very remarkable pioneer discovery, preceding as it did any of the work on the relationship of insects to the spread of human and animal diseases, the question of the role of bees in initiating fire blight in the early spring or in spreading the germs after they were introduced by some other agent has been more or less debated ever since. In this article an attempt will be made

to present our present knowledge on this subject, and in another article the work of the Arkansas Agricultural Experiment Station with bees will be presented.

For over five years the writer, with the help of assistants, has been studying fire blight of pears and apples very intensively and has published a number of technical articles and bulletins on the subject. These studies, however, are far from being complete and it must be freely admitted at once that what is to be reported on the work with bees is looked upon by the writer as merely suggestive and not conclusive. We

are continuing our studies just as intensively as in the past, and if in the future we find that our present ideas are untenable they will be reported, if possible, in this journal as well as in others.

Contrary to the ideas held tenaciously by so many growers and scientists, that fire blight can be controlled by some one method or another, the truth of the matter is that the disease has not been controlled adequately by any known method and that in spite of all attempts made, up to the present, to keep it in check it has practically wiped out the pear industry over a large part of America and is threatening to do the same thing to susceptible apple varieties.

What are the common methods used at present for controlling this disease, and what are the underlying principles involved in these methods? The chief method depended upon for many years to prevent this disease is the excision of all diseased twigs and limbs, the excision to be primarily practiced in the fall or during the dormant season. The other methods involve, first, preventive spraying or dusting with some fungicide such as Bordeaux mixture, some contact insecticide such as nicotine sulphate, derrisol, and the like, or a combination of sprays, these mostly to be applied either during the dormant or early part of the growing season; second, the application of a germicide such as zinc chloride to the blighted limbs, supplemented by summer pruning, during the growing season; and, third, the growing of resistant varieties of pears and apples, a method which implies the abandonment of nearly all of our finest quality pear varieties and some of our most valuable apple varieties, such as the Jonathan, Yellow Transparent, Maiden Blush, Fameuse, and Grimes Golden.

The principle underlying the control methods of fall, winter, or early spring pruning, as well as that of spraying or dusting during the dormant or early spring season, rests upon the assumption that the bacterial parasite responsible for this disease lives through the winter on the trees in formerly diseased twigs and limbs; that from such tissues or "hold-over cankers" the germs ooze out in the early spring, and that this bacterial ooze is scattered about, either by various insects such as bees, flies, wasps and aphids, or by rain and wind, thus initiating the



Fig. 1. A typical blight-infected apple limb, in the upper part, showing the dead flower clusters with their marked tendency of hanging on the trees. Notes taken of this limb during the blooming period showed that the infections commenced within the cups of the flowers.

disease in susceptible tissues such as blossoms, leaves and succulent twigs.

In addition to the insects already noted, many other species have been incriminated from time to time in the spread of fire blight. Among these are bark beetles, woolly aphids, mealy bugs, ants, tarnished plant bug, and leafhoppers, and in some instances, such for example as bark beetles, the evidence appears fairly adequate, though by no means complete, that they do at times act as disseminators of the fire blight germ. However, in no case so far as the writer knows has it been conclusively shown that insects are the chief or important agents involved in the production of first spring blight. While it has been conclusively shown that a honeybee, once it becomes contaminated with blight germs, can scatter the germs far and near, it has never been demonstrated, up to the time of the present writer's work, that bees are infested in the early spring prior to the advent of fresh blight. Dr. Waite, referred to in beginning of this article, used bees that became infested with germs upon visiting pear blossoms that he artificially inoculated with fire blight germs. He applied pure cultures of these germs to pear blossoms, produced the disease on such blossoms, noted bees visiting them, and spreading the disease to other blossoms. He captured some of these bees, excised their mouth parts, cultured the fire blight germ from them, and with such pure cultures produced typical blighting of susceptible tissues. While he clearly demonstrated that the honeybee can be a very important agent in distributing the germs, he did not demonstrate that this otherwise useful insect was responsible for starting the first blight. Waite at first assumed that bees might become infested by visiting bacterial ooze exuding from "hold-over cankers," but he has presented no evidence to substantiate this, and indeed in his later articles no mention is made of bees as visitors or disseminators of early spring ooze, though flies and wasps are mentioned as acting in this capacity.

Beginning with 1918, a number of scientific articles have appeared in which the investigators, contrary to many of those who previously worked in this field, have emphasized more and more the importance of rain and wind in distributing the parasite, and the idea that insects are responsible for either initial infections or secondary ones has been more or less relegated to the rear. The work on aphids is especially noteworthy. Notwithstanding the fact that a relatively large number of pathologists and entomologists have formerly assigned an important role to aphids as either initiators of primary infections or of secondary ones, the more

recent work offers conclusive evidence that this is not the case. Among those who considered aphids as important disseminating agents we note such men as D. H. Jones, V. B. Stewart, F. H. Lathrop, A. C. Burrill, J. H. Merrill, Gossard and Walton, and A. N. Brooks. They based their conclusions on general field observations, supplemented by rather meager experimental tests.

Some of these men have made important contributions to our knowledge of fire blight, and their erroneous deductions relative to plant lice as common blight disseminators can largely be excused because they were bound by one supposed fact. This "fact" was so widely held and so generously sanctioned by authority that it acted as an impenetrable barrier to a proper understanding of the subject. Briefly, it assumed that the fire blight germ, other than possessing the ability of penetrating the

floral nectary, could not enter into the unwounded surface of any organ. Naturally, it followed from this assumption that only by means of piercing or wound-inflicting agents could the germs enter into the tissues other than nectarial glands. What need, then, to seek for other agents than ubiquitous plant louse or the common leaf hopper, with their ominous piercing and sucking apparatus? Only a few simple tests were necessary to convince anyone that these otherwise harmful pests were the criminals. Just spray a few trees with nicotine sulphate or with lime sulphur, leave a check of unsprayed trees, and behold the results! Why waste time watching these aphids to see how often they came in contact with germ-laden ooze or to accurately observe and note the number of blossom clusters or leafy shoots blighting as a result of the visitation of bacteria-infested aphids? One



Fig. 2. Two upper pear shoots blighted by artificial inoculations with a water-suspension of blight germs. The lower, check, shoot sprayed with water only, remained disease free. Note the drop of ooze on the shoot at the left and the droplets of ooze on the leaf petioles at the right. The bacteria in these instances gained entrance into the tissues through the natural openings. Aphids or any other insects played no part in starting the infections.

need only correlate the presence of blight with the absence of a contact insecticide and the evidence is complete. There is little doubt in the writer's mind that had these workers not been weighed down by authority they would have investigated further.

As might have been expected, the two workers, E. C. Tullis and P. W. Miller, who paid scant attention to authority as to the necessity of wounds for infection courts, though they show respectable orthodoxy in certain other matters sanctioned by authority, are the very ones who found it necessary to carefully and thoroughly investigate the role of aphids as blight spreaders. It is not too much to say that Tullis has done more work on this subject than all the previous investigators put together. And what are his conclusions? Aphids are rarely involved in either primary or secondary infections. His experimental data fully bears this out. Miller's investigations, though not as extensive as Tullis' on this subject, point to the same conclusion. As a result of their work it may safely be said that in general aphids play a minor role in the first spring infections as well as in the later ones.

Flavor, May Carry Sales to Canada

American producers of honey of special flavors should be able to find a market in Canada in spite of lower prices of Canadian honey, according to a report by the American vice consul, Alan N. Steyne, at Montreal. The retail price may be above Canadian honey if the special flavor is emphasized to grocery brokers and on the labels of the packages.

In addition to a distinctive flower flavor, according to the vice consul's report, it is believed that an attractive container, colored to draw attention in a store, is essential. The fact that expensive packing might raise the price is of little importance, as the only sales outlets for American honey in Canada are the better grade groceries and de luxe food stores, where the price is secondary.

There is little hope of American sales of clover or ordinary field crop honey, because of ample Canadian production and a duty of 3 cents a pound. The possible market lies entirely in honey of special flavor. California orange-blossom honey, packed in distinctive bottles, is being sold with success through the better-grade groceries in eastern Canada. The most popular size is a 12-ounce container, retailing at 75 cents.

A European honey, packed by a London firm and sold by an American concern, does good business in the luxury trade of the larger cities. It is packed in an attractively colored

porcelain container with a parchment top and a paper label which can be washed off. This honey retails for \$1.75 for a 14½-ounce jar and is bought for invalids, steamer baskets, and gift purposes.

Its unusual flavor and colorful packing remove it from competition of lower priced honey. The flavors are the following: Wild acacia (Syrian honey); linden (Russian honey); peach (Spanish honey); and spring flowers (Dalmatian honey). Limited

quantities of Jamaican honey are also imported into Canada, but the sales are limited because it is heavily granulated and not attractively packed.

The total possible imports of American honey would not be great unless producers in a single locality, where the flowers give a specially flavored product, organize and promote car lot shipments and quantity purchase of distinctive containers.—From the Department of Commerce, Foodstuffs Division.

Doings in the Northwest

By N. N. Dodge

"Honey Fluff" — Should Go Well

Officials of the Candy House, manufacturers of the new Honey Fluff bar, are disappointed in the reception which the public has given to the product. However, the company will continue to keep the bar on the market with the hope that sales will increase after more people have tried the confection.



Honey Fluff, as it goes to market

New Brands — "Liquid Gold" and "Countryside"

Two new honey labels have appeared on the Seattle market. "Liquid Gold" and "Countryside" are the names of these new brands, whose attractive designs were originated by the A. L. Boyden Company.

Ella Lehr Cooking Schools Advocate Honey

Miss Ella M. Lehr, of the Ella Lehr Cooking Schools, conducted cooking classes in Seattle and Portland during the latter part of April. Miss Lehr is a strong advocate of the use of honey in cooking, and mentions this sweet frequently in her programs. During the coming summer she will appear in many of the cities and larger towns of the Northwest and as far south as New Mexico and Arizona. She states that she is very much interested in honey production

and is always pleased when beekeepers or members of their families make themselves known to her when she visits their towns.

Pearce-Dickerson Roadside Stand

A modern, roomy roadside stand is being constructed by the Pearce-Dickerson Bee Farms of Woodinville, Washington, according to Miss Elizabeth Dickerson, well known beekeeper of western Washington. For many years Miss Pearce and Miss Dickerson have marketed their products, honey and fruit preserves, through high-class grocery stores and by delivering direct to the housewives of Seattle and suburban towns. The new stand will augment rather than replace the established business, Miss Dickerson states.

Boston Apiaries Try Advertising in Ellensburg

Mr. John Boston, of the Boston Apiaries of Ellensburg, conducted an aggressive advertising campaign in Ellensburg during the latter part of March. Boston's honey, which has a wide distribution in the stores of Kittitas County, was played up in newspaper advertisements and was demonstrated in cooking work through a cooking school sponsored by the Ellensburg Evening Record, with Mrs. Jessie Scott, noted home economist, in charge.

Will You Use Three-Gallon Square Tins?

Efforts to interest the manufacturers of honey containers in making a three-gallon square tin similar to the five-gallon can now in use are being made by Mr. Talbot Winchell, of the A. L. Boyden Company. Mr. Talbot reports that the American Can Company, with factory at Portland, Oregon, will manufacture such a can if beekeepers signify a willingness to use this size in sufficient quantities to warrant setting up special machinery for its manufacture. Officials of the Continental Can Company are also considering the proposition of

making such a can on specifications submitted by Mr. Winchell. Because the present standard shipping case of two five-gallon cans when filled with honey is difficult to handle and dangerous because of its weight of 135 pounds gross, Mr. Winchell contends that the smaller container is much to be preferred. Several Northwest beekeepers have signified their intention of using the smaller container if it is manufactured, Mr. Winchell states.

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Beekeepers of Big Horn Valley Will Try Mail Order

Beekeepers of the Big Horn Valley of Northern Wyoming are looking about for ways to market their honey. They are investigating the possibilities of building up a mail order business on Big Horn Valley honey, in the larger cities of the Northwest, according to Mr. Johnson, their representative, who visited the coast cities early in April.

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Fireweed Prospects Good, Says Morgan

Prospects for a fine crop of honey from Northwest fireweed pastures are indicated by the favorable spring moisture conditions and the luxuriant growth of the plants, according to Mr. Frank Morgan, of Fall City, Washington. Colonies are in fine condition, having built up well on the early flows from maple and other spring nectar sources. Mr. Morgan is one of the major commercial honey producers of western Washington. He kept bees in Montana before coming to the Pacific Slope. "Conditions are pretty bad for the beekeeper, now," remarked Mr. Morgan, "but I've had a pretty tough apprenticeship, having had almost all of the troubles that any bee man can have, and I expect to keep right on producing honey until better times are here again."

"The Manufacture of Cottage Cheese"

This is the title of circular 48, written by C. A. Phillips and issued by the California Agricultural Extension Service. It should answer some of the questions of readers who have been asking about how to make cottage cheese. It talks about the selection and the quality of milk, pasteurization of milk, the use of starters, methods of making, and equipment. It is really intended for the creamery, mixing large batches, but the suggestions are just as useable for the small maker.

We have also two or three replies from other readers telling how to make cottage cheese, which either have appeared or will appear in our pages.



from the Little Blue Kitchen

A honeybee's business, a-wing,
Is questing for sweet things all day;
He is always too busy to sting
If humans keep out of his way!

Apple-Honey Dainties

It so happens that my husband refuses to eat a meal (barring breakfasts) in which apples do not appear. I have almost as great a leaning toward meals with honey in some form. So you see why I set about planning foods in which the apple and honey might be combined.

If one dish could satisfy both our cravings, that item would be an ideal one on our daily menus.

And it is really astonishing how much one can learn about any one subject once he concentrates on it. Facts unnoted before bob up at every corner. So it has come about that we have many a dish "fit to set before a king," and in it may be found both apple and honey elements.

Here is one of the things we like particularly well:

Baked Honey Apples

Select a medium-sized apple (red ones, if you are following a color scheme. Cut out of the stem end a little "cup" with a dessert spoon. Into this pour a mixture of melted butter, strained honey and grated nutmeg. Bake in a moderate oven for from twenty minutes to half an hour. Serve hot.

Apple Dumplings with Honey Sauce

Follow any favored apple-dumpling recipe, using, if possible, however, a vegetable oil shortening rather than animal fat. Then when nicely browned and ready to serve, pour over it the following sauce:

One cup of heated honey, one ounce melted butter, and one tablespoonful of vinegar. Serve hot over the dumplings.

Apple Fritters and Honey

The batter: 2 eggs, ½ cup milk, 1 cup flour, 1 saltspoon of salt, 1 teaspoonful of honey, 1 tablespoon of cooking oil. Separate the whites and yolks of the eggs. Mix together the flour and salt, then blend the milk, honey and oil and add to dry ingredients; then add the egg yolks. At the last add the whites of the eggs after beating them until stiff.

The apples: Core and pare four apples, but do not break them; cut in one-third-inch sections, leaving the round core-hole at center. Pour over them a mixture of equal portions of honey, lemon juice and cinnamon. Dip each slice in the fritter batter and fry in hot (vegetable) fat. Drain and sprinkle very lightly with powdered sugar. The sugar is added more to give an appetizing appearance to the fritters than for sweetening, as the honey will give them quite enough sweetness.

Honey in Apple Pies

Doubtless every housewife has her own pet recipe for apple pie, but anyone who will use strained honey with a dash of grated nutmeg for the sweetening of apple pie filling, and have the temerity to use brown instead of white flour for the crust, and will also be sufficiently original to use vegetable oil instead of lard, will be rewarded by one of the most delicious desserts imaginable. I know, for I have made and eaten such pies with real delight.

Applesauce is even more delicious sweetened with honey than with sugar. The same may be said of Brown Betty and almost every apple dainty. The amount of honey should not be quite as much as that of sugar, because honey is sweeter and more satisfying to the "sweet tooth" than cane or other sugars.

Lida Keck Wiggins.

Correction in Southern Conference

We are reminded by W. E. Anderson, state entomologist in Louisiana, of a correction in the report of the Southern Beekeepers' Conference at Montgomery. The resolutions sent to the Conference by the Apiary Inspectors of America for endorsement were passed as resolutions of the Conference. In fairness to everyone, it should be stated that the resolutions that originated at the apiary inspectors' meeting at Toronto were merely re-adopted by the Conference to strengthen them, and did not originate at Montgomery.



Top Entrances?

—Bees Resent Such Monkey Business

by J. W. Braithwaite
Manitoba

We cannot all agree. According to Braithwaite, those top entrances are not so good—just an aggravation. His top entrance hive, the picture of which heads this article, is a pretty plaything and looks innocent enough, until you get into real honey production; then the trouble starts. His story is both mirthful and thoughtful.



I READ with great interest the article in March by H. A. Insinger on "Top Entrance Hives," and, having experimented in a small way with them myself, I give the results of my experience and the conclusions I have reached.

Two years ago, at the convention of the Manitoba Association, there was a discussion of the merits of the top entrance, or "Let Alone" system, as it was called. Supporters claimed the bees needed no attention in the spring, that they would rarely swarm, that they would make just as much honey, if not more than with the usual methods.

Being interested, I decided to try one hive with a top entrance to see what it would do. I figured out a satisfactory top entrance and with the coming of spring set up my hive with the entrance at the top, brood chamber underneath, four supers of drawn comb below, separated by sheets of newspaper so the bees would gain access to only one super at a time.

In this hive, during the first week of May, I placed a two-pound package and the bees settled down to business at once. They built up very rapidly. Soon after the beginning of the sweet clover honeyflow in July the whole structure seemed to be full of bees.

I frequently visited my apiary at night when the bees were fanning, and this top entrance hive always

seemed to be a veritable hive of industry, setting up a hum that could be heard a distance away. When I put my ear to the different supers it seemed as though the bees were active in all of them, right down to the bottom board.

About the middle of July I became alarmed, imagining the bees had filled all four supers with honey and were short of room. So I raised the brood chamber and placed a super of drawn comb just underneath.

That sounds easy, but was it? Just a minute and I will unfold the story. A week or so later I was satisfied that this super was now full in its turn and the bees again needing room. Come with me, reader, in your imagination, and see me giving this room for my pet colony, my one top-entrance hive.

Here we are at the apiary. Observe that the hive is six supers high, that is five supers and a brood chamber, and the bees are entering and leaving the hive by the thousands. Placing a large packing case close to and immediately behind my objective, I mount same and prepare to "super up."

Grasping my hive tool by "the small of the butt," as we used to say in the army, I insert it between the brood chamber and the first super and pry up. It refuses to budge, but after a deal of straining I eventually get it loose. Balancing myself carefully on my packing case, I lift the

brood chamber off and place it down on the box beside me.

Immediately five million bees—surely no less—are all over me, looking for their home. They can't find it. They are very busy too—have loads of nectar to deposit and know where there is more to be obtained. They resent this monkeying with their home. More and more come every minute until the air is filled with them, and, finally, losing their tempers altogether, they turn on me to pierce my armor in a hundred places at once, driving me to hasty retreat.

Let us draw a veil over the scene. It is enough to say that I got my super on and the hive fixed up again at the expense of the worst stinging I ever received and the mental resolve that never again would I try to place a super under a top-entrance hive during the honeyflow.

At the end of the season, after the cold weather had set in, I took the hive apart and found the top four supers full of honey and the fifth about half full. I found that brood had been raised in the second super from the top, but not in the top one, which was of course the last one put on and the one which occasioned the stinging.

I concluded from this that when adding the last super I had broken the brood nest in two and put the super in between. The full supers of honey were well filled and alto-

gether gave me a surplus of some 250 pounds of honey. This was higher than my average per colony yield and I decided to give the system a trial another year.

The Second Year

In the spring of last year I set up four top-entrance hives, each with six supers of combs below the brood chamber (no more supering in July for me with these hives). After this second year's experience I formed rather definite conclusions, as follows:

Advantages

1. **Non-Swarming.** Although my five top-entrance hives were strong and gave over two hundred pounds of honey, and although no queen-cells were cut out nor the hives interfered with in any way, not one of them put out a swarm that I know of. In this respect, at least, they bear out the claims of their supporters.

2. **Require no attention.** After the hives were once set up and working, no attention was given them (with the exception of that one hive the first year), and they were not opened until the end of the flow. Of course, this is the ideal system for a farmer or the man who wishes a hive or two to get honey for home and who has little time to devote to his bees, or who, from fear of stings, usually does as little with them as possible.

3. **Ventilation.** There is little doubt that the top entrance provides ideal ventilation in hot weather and, having a tendency to eliminate moisture, would likely prove satisfactory for cellar wintering. For cold weather, however, after taking the bees out of the cellar in early spring I would prefer reduced, standard bottom entrances. Just as the opening at the top lets out excessive heat in hot weather, so I think it would let out much needed warmth on cool spring days.

4. **Bees always quiet.** Bees in a top-entrance hive on the "Let 'em Alone" plan are naturally quiet and good tempered. The picture with this article shows one of my hives kept on a scale, with daily readings taken for the agricultural college at Winnipeg. It was in a prominent place in my flower garden and was the subject of interest and comment. People were passing to and fro in front of it and stopping to look at the bees, yet not once during the season did I hear of a person getting stung. This makes the system worthy of consideration for those who wish to keep bees on a small lot and are anxious to avoid having neighbors or children bother them.

Disadvantages

1. **Impossibility of control.** Although the top entrance is useful for those who have no time to attend to bees, that does not apply to the aver-

age beekeeper who likes to control and manipulate his bees, taking the honey off and taking a general interest in the condition of the hive.

Because of the necessity of taking off the entrance to open the hive, thus removing the usual means of getting in and out for the bees, it is impossible to examine the brood chamber or remove it to see what is going on in the supers, or to handle the frames. When examining the ordinary hive the field bees come and go with little or no attention to the beekeeper, but with the top entrance off, the returning bees arrive at about the height of one's face, flying around in a vain endeavor to locate their entrance, constituting a source of continual annoyance, even if they do not drive the operator away altogether.

This is my main objection to the system, and to my mind it outweighs the advantages for a beekeeper keeping any number of colonies. I think it would be quite impossible to produce comb honey with any degree of success in a top-entrance hive. I would be interested to hear of anyone having succeeded in doing so.

Another point: Because of the difficulty of control, especially with package bees, there would be a larger percentage of colonies hopelessly queenless and much valuable time would be lost from dwindling. This is a serious drawback.

2. **Ties up equipment.** Assuming that the only feasible way of operating "toppers" is on the "Let 'em alone" plan, the necessity of tying up a large number of supers becomes apparent at once. This is no mean consideration either these hard times.

In sweet clover districts, where yields of 350 pounds are not uncommon, it would be necessary to give as high as seven supers besides the brood chamber to accommodate the honey. These supers would be tied up during the whole season. With the usual management they would be sufficient for at least double the number of colonies. So we see that the investment for an apiary with top-entrance hives would need to be twice as heavy in supers as an apiary of the same size under the usual management.

3. **Smaller returns.** Last year my top-entrance hives gave me an average yield of 180 pounds, the highest being slightly over 200 pounds and the least 165 pounds. This was considerably less than my total per colony average, and a long way behind the 400 pounds brought in by my best hive.

It is reasonable to suppose too that when the bees in these hives get three or four supers of honey nicely sealed for winter (as they suppose) they will have a sense of security and self-satisfaction and let up a little in their activities. Whether this is true

or not, it is certain that when the bees have to pass through three or four full supers of honey with loads of nectar they will not work as furiously as when entering directly into the supers of empty drawn combs. Is it not for this very reason that we put empty supers next to the brood chamber rather than on top of those full or nearly full?

At all events, I conclude one would never get maximum results from top-entrance hives, especially considering their proneness to queenlessness.

4. **Burr-combs.** When taking down my top-entrance hives I swore I would never bother with them again. In every case the bees insisted on occupying two supers with their brood nest, and I finally had to put inverted bee escapes under the top supers to reduce them to one super for wintering. Add to this the fact that the full frames of honey were all joined solidly together, not only to those on either side, but to those above and below. The result was a sticky mess, annoying to handle, not to be compared with the ease and pleasure with which full supers can be taken away from bottom-entrance hives, right in the height of the season if desired. The honey is nice and warm. It may be extracted and the supers returned, often not only once, but two or three times in the season.

Summary

To sum up, then, my conclusion is that the top-entrance hives may be satisfactory for those who wish to keep a few colonies without time to care for them. They may also be valuable to those who keep bees practically by their doorstep.

But for the man who keeps bees as a business, the "topper" finds no place save as a passing experiment. The "let 'em alone" plan has no appeal for the busy commercial honey producer. He must know what his bees are doing all the time.

No system of "toppers" is practical on a large scale, for no busy beekeeper would tolerate working in a cloud of angry bees which come, on removing the brood chamber, each time he wishes to look into a super. For him, time is money; he must move swiftly, silently and surely from one colony to another, avoiding anything liable to create anger, unrest, or confusion among his bees.

Top Entrance as a Skunk Guard

A reader from Nebraska, W. H. Mills, after reading the article by H. A. Insinger in the March number on "The Top Entrance," says that an added advantage to it would be to save many colonies from being disturbed or destroyed by skunks. That's decidedly true.

(Yes, but it is also true that bees cannot carry dead ones up from the floor.—Editor.)

OVER THE COFFEE CUPS



A Four-Cornered Conversation About Cooperative Marketing

From the State of Kansas

Picture the scene: a honey house in John's Kansas apiary. John, Bill, Neighbor Jones, and "Cappy" Goodwin from over in Union Center are talking things over. Let's listen in.

"**W**HAT do you think of cooperative marketing?" John asks, to start a conversation.

Bill takes up the challenge. "I don't know. The average cooperative marketing fails from mismanagement. The idea is to reduce selling costs and not decrease the returns, to get more money for our honey. The idea is fine, but in practice the scheme often increases the marketing costs without bringing in any more selling price, so there is a smaller net return.

"I asked Mr. Whitney, for several years secretary of the Kansas Horticultural Society, about it, and he tells me that in the last forty years he has seen a good many marketing efforts by fruit growers, vegetable growers and dairy men fail because the men hired to run the business didn't have enough ability to insure success, and serious failure was inevitable."

"It seems to me," replies John laconically, "you are rather pessimistic. I admit it's hard to get someone else to do your work for you, and that's what we try to do when we put our honey in the hands of a cooperative association."

"I have thought a good deal about cooperation that does fine work," says neighbor Jones, entering the conversation. "Take for example the Market News Service that is mailed direct to honey producers by the Bureau of Agricultural Economics. It gives an accurate statement of prices for honey in all parts of the country, and it is the direct result of cooperation among honey producers. It actually works. Why won't a selling organization work?"

"There is a difference," asserts John. "The News Service has Uncle Sam standing over it for a boss, and the cooperative scheme has just a business manager, with no one to make him do his work. I wish there were some way to get Uncle Sam to take over the job of bossing our selling. We might get somewhere."

"Man, you've said something.

That's what we need — a boss," exclaimed Cappy Goodwin, interested at last. "Neighbor Jones, you tell us what you think can be done, in a practical way, among beekeepers."

"That's a dangerous suggestion," laughs Neighbor Jones. "Cooperation is one of my hobbies. If I tell you all the good things I think about it, we'll be here all night."

"No we won't," John affirms. "This place closes up about midnight; but go ahead."

"All right, let's go," begins Neighbor Jones, wading into the subject. "Consider advertising. Only one kind pays now, and that's the advertising of special brands by individuals, to promote the sale of an individual product. Every man who sells honey must do some advertising or no one will know he has honey. A beehive in the front yard, a 'Honey for Sale' sign on the gate post, a small ad in the local paper, a window display in the grocery, a personal call on the customer, a good sales talk.

"Have you ever stopped to think what could be done by national advertising? There are difficulties, of course. Every publication has skilled advertising men who help the advertisers. They are the best men in their profession, but their job is to get as much of the advertiser's money as possible. That is what they are paid for and that is the reason it is so hard to spend money for advertising and get value."

"But, Jones," asks Cappy, "isn't there some way to buy advertising and be sure of your money's worth?"

"Of course," continues Neighbor Jones. "Just wait a minute. Advertising is expensive when paid for at regular rates, but any newspaper or magazine will give you free space if you dress your advertising up like a story and make it so attractive and interesting that the reader will want to read every word of it. The Wichita Eagle gave a space two columns wide and seven inches long for such an advertisement, printed free in their Sunday paper. It tells how bees

wrote the beekeeper's name in honey-comb. A common stunt to all of us. A sort of educated bee story, and they just gobbled it up. Now, instead of this being done by one man, suppose there were some way to cooperate in such advertising."

"How many beekeepers do you think would be willing to go to the trouble to produce a design, even if we did have a cooperative plan?" interposes John.

"Now don't drive from the back seat. This is an old Model T Ford. Just be patient and enjoy the scenery," continues Neighbor Jones. "I haven't said a thing yet about broadcasting ideas to beekeepers. No use telling a man to do a thing unless you are in a position to punish him if he fails to do it.

"If this honey story had been put out by a cooperative association instead of by an individual, increases in sales would have been several hundred times as great as they were. It would arouse national interest if three hundred papers printed such a story."

"Say, that gives me an idea," returns Cappy, enthusiastically. "You know, after the war there were a good many undernourished children in France, and they were built up to normal by drinking milk, eggs, and honey. In every school in the United States there is a group of undernourished children drinking half a pint of milk a day at recess. It ought to be easy to persuade the school nurse, through our cooperative association, to divide the milk drinking squad into two equal parts, giving half of them milk and the other half a well balanced mixture of milk and honey. Keep tab on the children. If they gain in weight and general health, the whole teaching force and the whole town would know about it. The honey used could be donated by the local beekeepers. The name of the beekeeper and the name of the milkman could be printed on the bottle top. The quality of the honey could be inspected and approved by samples sent to Washington. The mixing could be done by the dairyman when he bottled the milk or could be done at the school.

"If this were a nation-wide experiment and each paper wrote it up, what a lot of food advertising it would get! Imagine the effect on the mothers of children after an experiment of this kind. Why, the country would have to import honey to supply the demand."

"By George, you're right, Cappy," exclaims Jones. "That would certainly make a big demand for honey. Educate the bees to spell and teach the children to eat honey. I call that cooperation."

"Maybe that kind of cooperative advertising would work," agrees John. "People think bees are wild and un-

usual. That's what makes an educated bee story appealing. Very often the wild and unusual will attract attention and hold interest. Well, you have me pretty thoroughly sold on the possibilities, especially under some kind of control.

"I can see that cooperative marketing may be a failure, but cooperative buying can be made a success. For instance, it might be easy to induce local labor users to place group orders for honey with local beekeepers at an approved price. Any group of workers who have sense enough to sell their labor as a group ought to be quick to take advantage of buying as a group."

"Sure, but what about the poor farmer?" exclaims John. Let him eat a cheaper sweet, I suppose."

"Well, I should say not," explodes Neighbor Jones. "The outlets we have mentioned are all for small packages, which cost money and a lot of time and effort. A fine grade of white extracted honey for which the producer is usually glad to get 8 cents in sixty-pound cans in car lots costs the consumer 25 to 30 cents in glass jars. Now the farmer sells his wheat and cattle in car lots and must take a car lot price for them. There must be some way so he can get at this 8 cent supply of honey through his county agent."

"It might be easy to induce county agents or a local cooperative to get

orders among farmers at 8 cents a pound plus freight and cost. There are only five hundred sixty-pound cans in a car. There are many counties where orders among farmers would equal that, and they could ship in a solid car and only have to pay carload freight and costs. My goodness! If that little stunt were put over in this country, it would just about double honey consumption."

Suddenly John stands up, pointing at the clock. "Look at that clock up there—almost twelve," he says, getting ready to put out the light and shut the door. "Well, it's been a privilege to talk this way. I remember what our physics teacher in High School tells each class. There is only a certain amount of physical matter in the world and it constantly changes. By the decomposition of a rugged mountain range, an alluvial plain is formed. By the decomposition of vegetation, coal is formed. Coal under steam boilers decomposes and drives the wheels of industry. By the decomposition of human brains, wonderful ideas are born. Hurrah for decomposition!"

Then, dancing out of the house, he shouts at the three departing figures:

"To the rotten spots in the human brain
Evolving plans for further gain,
The wildest phantom in all creation
Is that will-o-the-wisp cooperation."

Nothing Ails Honey—If You Treat It Right

By Joe Marty

THE article "What Ails Honey?", in the March issue of the Journal, is a "ringer." Them's my sentiments exactly and I want to "tell the world" how I "got that way."

In the Pacific Northwest there are all kinds of honey, some of it the poorest of quality and others of the finest—all, too, within a radius of one hundred miles. In the Willamette Valley bottoms there are clover honey, vetch honey, and honey of various flavors, some almost sickening. The dog-fennel and the bachelor button blossoms produce the most inferior kinds. In the mountains nearby there is the fireweed honey, probably the finest kind produced anywhere.

My apiary is located in the foothills of the Cascade Mountains and in a good fireweed district; hence when I began retailing my honey I was met by two outstanding mental oppositions from my patrons. One was my honey was higher than some they could buy, and the other was a sickening expression with the remark, "Honey makes me sick." I had much difficulty, in some instances, to get my prospective customers to taste it, but when they did they usually purchased some and forgot about the

"high price." Today I am retailing my honey at almost double the price the "Valley honey" is selling at, and my customers are glad to get it.

If it is true that many products can be sold under the name of honey products, that have no honey in them, is it not logical to deduct that some of our honeys are adulterated as well as unripe, and inferior and unsalable stuff is mixed with better grades to "get the blend" so it may sell? Whether the extracted honeys are adulterated or not, the public largely believe that they are, which amounts to the same thing, as far as the honey producers are concerned, for it dampens the consumers' taste for it, thereby lessening the sales of the bee man.

A large percentage of our bee men are not honest with the public. "Valley honey" is often sold under the name of "Mountain Honey," the inference being that said honey has a large fireweed honey content. Alfalfa honey is sold as "Mountain Clover." Bachelor button and dog-fennel honey are "blended" with other honeys so that they may be disposed of. Unripe honey (honey extracted shortly after the nectar is put in the combs) is a common product—so

common that the honey packers feel obliged to heat the honey to above 150 degrees, thereby hurting some of its sugar. Honeydew honey is passed off on the public as "Pure Honey."

In retailing my honey, when I was met by the expression "Honey makes me sick," or "We don't like honey," or "We prefer sugar or syrup," I endeavored to know why, for I believe that no sweet is half so nice or wholesome as honey. I insist upon tasting some of their honey (for in many instances they have some that they had acquired and never used). Usually I find it to be of such an inferior quality that even I do not like it. As a rule I get no sale there, for if a person has once been made sick upon a food, that food is usually unpalatable ever afterwards.

In selecting a label, I tried to get one distinctive—that is, one that stated exactly the kind of honey I have. I wrote to several label concerns, including a couple of bee journals, for sample labels, but they all had "Pure Honey" printed thereon and but few would change or insert other lettering—none to my full satisfaction. I was determined to have one that could not be used on every kind of honey.

My honey label must state the kind and the quality and, if possible, have the picture of the flower from which the nectar was gathered. I finally secured one with the proper lettering, but I could not get the willow herb (fireweed) blossom printed thereon, but was compelled to take one with the picture of a rose blossom. The apple growers of the Northwest are not content to pack their apples in boxes labeled "Pure Apples." This label must state the kind, size, where packed, and by whom packed, and these apples must be ripe and sound. Why cannot honey labels be made as distinctive as apple labels?

To help my sales, I distribute samples freely. My patrons are insisted to taste the honey and samples for tasting are left at the retail stores. I guarantee the patrons to be pleased with the product or to refund to them what they feel they have been overcharged.

Visitors are always welcome to my apiary and I always take time to show and explain things of interest to them. I try to take my customers into my confidence, and my sales have been splendid considering the hard times.

Joe Marty, Oregon.

March 16, 1931.

Soft to the Last Crumb

A midwestern bakery uses honey in all its cakes. In consequence it has achieved a reputation of making cakes that keep soft to the last crumb.

L. K. W.

The Swarm As a Festival of Enjoyment

By Charles Hofmaster, Oklahoma



LAST spring circumstances prevented me from giving my bees much attention during the pre-swarming time. So, perforce, I decided to try the "let-them-alone" plan. As I did not want any increase, I took the usual precautions by giving them plenty of room and ventilation (they have good natural shade), but otherwise I never looked into a brood chamber. They appeared to be queen-right, and by the weight of the hives I knew they had plenty of stores.

The normal swarming time in my locality is during the middle and end of May. But on account of the abnormally cold and wet spring, swarming was delayed more than two weeks. About half of my hives cast a swarm. Whenever a swarm issued and settled, I lit my smoker leisurely and opened the parent colony to destroy all queen-cells but one. As it happened, in nearly every instance there were one or more fully developed virgins ready to emerge—the old more or less gnawed and the virgin trying to push out.

After closing the hive again, I proceeded to secure the swarm. I used as a swarm catcher a small wire waste paper basket, with several small leafy twigs, provided with wire hooks, hung around the inside of it. With the swarm in the basket, I went right behind the hive they had come from and carefully removed each twig with the adhering bees and hung them separately about. Thus, with what bees adhered to the basket itself, I had the swarm nicely separated into several parts.

Then, as soon as a bunch showed by getting restless that they had not the queen with them, I dumped them in front of the hive. The remaining bunch, indicating by its quietness the presence of the queen, was subjected to search. The queen, when found, was killed and the rest of the bees dumped before the hive.

The plan worked fine; in every instance the bees accepted the situation and settled down to business. I

got just what I wanted—no increase and a young queen in the hive—with comparatively little labor and trouble.

I do not claim any novelty for this plan, as most likely someone will offer puncture-proof evidence that it was already well known in Aristotle's great-grandfather's time. Also, the plan might not work at all in another season, and it would not be very feasible in a big yard. Anyway, it worked fine this time and I had some good sport and enjoyment out of it (chorus of "pooh-pooh's" from orthodox beekeepers) and the bees had theirs, too (more "pooh-pooh's").

Ordinarily I do not want the bees to swarm. Winter losses in this locality are negligible, so there is little need for new swarms. But all the same, the phenomenon of swarming has not yet lost its charm and interest with me. I consider the swarming of bees one of the prettiest incidents of rural life. In the bygone days of the small beekeeper with his "gums" and skeps, the swarming of the bees was always a joyful event, with the entire household taking an active or passive part in the excitement.

But, alas, romance has no place any more in modern business. Cold-blooded modern commercial beekeep-

ing, with its eyes only on the resulting shekels, frowns on swarming; the commercial beekeeper looks with wrath at a gayly dancing swarm; the beginner is taught to regard natural swarming as an absolute calamity. It is true, natural swarming has to be suppressed in modern beekeeping, but as there will be always some swarms we might as well look with a more tolerant eye on them.

I am convinced that the swarming act, though it lasts only a few short minutes from the beginning of the excitement in the hive till the swarm has "settled," constitutes a tremendously festive event in bee life. The helter skelter of their exit, the unmistakable note of joyous excitement in their noise, and the utter abandon of their gyrations in the air, can be interpreted but as an outward expression of an overwhelmingly festive spirit.

Should it not be so? It is the most momentous event in their existence; the birth of a new unit of communal life. We have a strikingly similar analogy in human life. With mankind, the family constitutes the unit of social life. The creation of such a unit, the union of man and woman in wedlock, is universally celebrated as an event of special importance. Primitive people in picturesque, gaudy colored attire and ultra-cultured folks in somber-hued, forked-tail-coat suits and Parisian "creations," all celebrate this event with more or less elaborate ceremonial rites, feasting and dancing. It is not a mere following of arbitrary custom, but originated in an instinctive desire to give vent to an innate feeling of joy and happiness.

Even in the vegetable kingdom we see an interesting similitude. Plants are perfect living organic things, although they are popularly little regarded as such. They have the same life cycle as in the animal kingdom—birth, vigorous youth, staid maturity, declining age, and finally death. They may also suffer an untimely death by violence, disease or other causes.



They may live a miserable or an opulent existence, according to circumstances. They strive for the same three primitive desires—food, comfort, and perpetuation of the species.

As these three primary objectives are indispensable necessities of life, they are by a wise nature fostered and compelled by extra strong sensual reactions—the desire for food by hunger, the desire for comfort by the disagreeable feeling of discomfort and by actual pain, and perpetuation by a more or less periodical irresistible sensuous impulse. The similarity of animal and vegetable life would indicate the presence of something akin to the animal instinct and will power in plants. One cannot observe their literally heroic struggle for a place in the sun, the desperate attempts under adverse circumstances to produce seeds, the practical way they heal injuries or overcome obstacles in their existence, and not come to such a conclusion.

While we grudgingly condescend to call the actions of animals "instinct," plant activities have always been so little considered the language has not even a name for it. The inner structure of plants is extremely simple, and though there is a perfect circulation, respiration, digestion, etc., there is not a trace of any special organs as animals have for such purposes. This discrepancy may be accounted for by the following theory: Plants, being rooted firmly to old Mother Earth, receive their driving power by mysterious forces of nature direct from this inexhaustible reservoir, while the mobile animals must have a number of special organs to act as intermediaries. Like an incandescent light, which, if connected by wire with the distant power house, will function correctly without any extra fixtures, when used in a portable electric lamp needs an "organ," a special apparatus, to accomplish the same thing.

The sexually highest evolved plants are those with hermaphrodite or perfect flowers, in which both female and male organs are present in the same flower, surrounded by the petals. Those flowers are the show pieces of outdoor nature, often of exquisite beauty in shape, color, and fragrance. A reason for their more or less brilliant showiness is generally stated as a scheme of nature to attract insects for the purpose of cross-pollination.

This is undoubtedly partly true, although we cannot deny that insects will find the offered nectar and pollen readily enough, even if there are no multicolored petals, just as bees will find honeydew readily if they really want it.

It is my opinion that a flower is really a wedding bower in which that supreme moment of life, the sexual union, takes place—a colorful display to the surrounding world, effectively heralding that great event—

in short, an act of festivity.

We do not know how a plant can be aware of this masterwork, but, in accordance with the theory that a plant may have perfect assimilation without alimentary organs, perfect circulation without a heart, respiration without a lung, sensitiveness without a brain, it may also perceive without an eye.

Verily, the ancients, who peopled the woods and the meadows with spirits, were perhaps not such mean observers after all.

Oklahoma.

A New Kind of Boxing Glove

—Also Some Good Disease Suggestions



W. E. Stepp, of Topeka, Kansas, sends us his picture. He said in his letter that he had not received his Bee Journal and that by his picture "you will see I have slipped on my boxing gloves and you are in for it if I do not get my Journal in a few days. Hot and dry in Kansas. Honey-flow stopped.

"In reading the Journal, I note methods of disease control. Let me give you my way, which in seventeen years has not failed me yet:

Shaking, Requeening and Burning in Treating Disease

"Brush all the bees from the comb of the diseased colony on a sheet of paper in front of an old box with two starters inside. Let the bees go in, cage the old queen and hang the cage from the top by a wire and leave twenty-four hours.

"Then place a new queen in a new cage in a clean hive filled with wired foundation. Place a new paper in front of the hive and give the bees some smoke. Then dump them all from the box on the paper and let them go into the hive, and the job is done.

"I dig a hole, build a fire in the bottom and dump all the diseased material on the fire—combs, honey, and all. I make the hole deep enough so that no honey can run out where the bees may get it. I cover everything that is left with dirt after the fire has gone out.

"Now use a blow torch and scorch the hive carefully, completely brown on the inside, and it is ready to use again. I never have had a case return with this treatment. I never keep the old queen, but burn her with the box. Give a new young queen every time, and be sure she is a good one."

Kansas.

(Let us suggest that the treating be done in an isolated place where there are no healthy bees—in a hospital yard, so there will be no drifting back to those bees which have not yet shown any signs of disease. We think that Mr. Stepp's plan will work excellently.—Editor.)

What Is "Foreign" Honey?

Mr. Pellett is technically right, on page 196, when he calls attention to the fact that Hawaii is a part of the United States, and that, strictly speaking, Hawaiian honey is not "foreign honey." On that score, this writer must acknowledge error and stand corrected, technically. But Mr. Pellett must remember that, to a Californian, California is California and everywhere else in the world is "back east."

It is perfectly all right for California honey to be sold in New York and Illinois, so that those "back east foreigners" may have a chance to find out what real good honey tastes like. But when "foreign countries," like New York, Illinois and Hawaii, ship their honey to California, where there is an overload of unsold surplus honey, and, by a process of blending, sell that honey on the general market under the trade name of "California Honey," that is a gray horse of another color. We have been told out here, on good authority, that some of the English importers of American honey use rubber stamps and stencils, bearing the charmed words "California Honey," with which to mark the cases after they arrive in England.

Whether deserved or not, California honey sells at a premium, in some markets, on its name and reputation. The probability is that the basis of this reputation is more psychological than real superiority of quality or flavor. While it is a fact that sage and orange honey are unique in quality and flavor, they are certainly not superior to the pure white clover honey of Illinois. In the opinion of the writer, white clover comb honey has no superior.

R. B. McCain, California.

The Colloidal Constituents of Honey and Their Influence on Color and Clarity

By R. E. Lothrop and H. S. Paine
Carbohydrate Division, Bureau of Chemistry and Soils, U. S. Department of Agriculture

ALTHOUGH a large amount of investigational work has been conducted on the composition and properties of honey in relation to its principal components, very little attention has been given to constituents present in honey that are in the so-called colloidal state. A colloidal solution consists of particles of a substance in a comparatively high state of division or dispersion, distributed almost uniformly throughout the dispersing liquid.

In general, colloids are the "gummy," non-crystalline substances of nature in contradistinction to substances such as salt and sugar, which crystallize readily. Gelatine, egg albumin, gum arabic and various tree gums are typical colloids. The particles of a colloidal solution vary considerably in size for colloids of different types, lying somewhere between that of a relatively coarse suspension, such as chalk particles suspended in water, and a true solution, such as a salt or a sugar solution. In a true solution, such as a salt or a sugar solution, the molecules of which the substance is comprised are distributed uniformly throughout the solution, and we can consider the dissolved substance as being dispersed to its maximum limit. In colloidal solutions, on the other hand, the division has not reached this state, but rather aggregates of molecules are considered as constituting the colloidal particles. For solutions of such substances as starch or proteins, the dispersion may reach molecular dimensions, but the starch or protein molecule is so large that the solution formed from them will be "colloidal." Some examples of typical colloidal solutions are finely divided clay particles dispersed in water, a soap solution, and an egg albumen solution.

The suspended, solid particles of a colloidal solution do not settle out from the solution like the particles of an ordinary suspension, such as powdered chalk and water, but may remain in suspension indefinitely. This is due to a stabilizing influence that acts to keep the particles in suspension, and prevents settling. The stability of one type of colloidal solution is due predominantly to the electric charges carried by the solid colloidal particles, and in another type of colloidal solution the property of the particles of taking up or combining with a comparatively large quantity of water is the principal factor in stabilizing the colloidal solution and preventing the suspended

A long article, to be sure, but how can the authors be brief on a subject like this? A bit technical, too, yet made just as easy to read as possible, since the subject is strictly technical. Read it carefully, because it shows how rapidly we are approaching that fine day when honey will come into its own. With all the help we have, from men like Lothrop and Paine, we must understand what they do just as thoroughly as we can.

solid particles from settling out of the liquid. The latter type is referred to as a "hydrated colloid," and is exemplified by such substances as glue and jelly. Honey contains colloids of both types, and each one imparts different properties to honey.

The stabilizing effect of the electric charges possessed by the very minute, solid particles of colloidal solutions is easy to understand when we consider that the like charges of the particles repel each other, thereby tending to keep the individual particles apart, and produce an even distribution throughout the liquid. If the electric charges of the particles are removed in some way, their repelling force is thereby eliminated, and there is nothing to prevent the minute, individual suspended particles from collecting together and settling out of the liquid. This actually takes place when the electric charges of colloidal particles of this type are removed.

Colloids in Honey

It is easy to demonstrate the presence of colloids in honey by diluting a comparatively clear honey with an equal quantity of water. The honey solution will become milky in appearance, due to coagulation of a small portion of the colloids. This action apparently is due to the stabilizing influence on honey colloids of the sugars which are present in concentrated solution in honey. Dilution with water tends to lessen this stabilizing influence of the sugars and results in coagulation and precipitation of part of the colloids.

Colloids may be isolated from honey by filtering the diluted honey through collodion membranes. Colloidal particles pass through the pores of ordinary filter paper, but the pores of a sheet of collodion are so fine

that when it is used as a filter most colloidal substances are unable to pass through it, whereas sugars, salts, and other crystalline substances which exist in true solution pass through readily. This process is known as "ultra-filtration," because it is much more effective than ordinary filtration in separating very fine suspended solid particles from liquids. By this means it is possible to separate colloidal substances from the salts, sugars, and other constituents of honey. By ultra-filtering honey through standardized collodion sheets or membranes, it has been found that some dark honeys, such as buckwheat honey, contain as much as 1 per cent of colloidal material, although light honeys usually contain in the region of 0.2 per cent colloidal matter.

Importance of Investigation of the Colloids of Honey

It does not necessarily follow, because of the comparatively small percentage of colloidal substances occurring in honey, that their influence on the properties of honey is not very great. As an illustration of the influence of small proportions of colloids may be mentioned the fact that one part of the soap, sodium stearate, dissolved in three hundred parts of hot water will cause the solution to solidify on cooling. Preliminary experiments made in this laboratory indicate that in honeys of the darker types, such as buckwheat, a considerable part of the coloring matter is present in colloidal condition, and that removal of this colloidal material by ultra-filtration results in greatly improving the quality of the honey from the standpoint of color and clarity.

Another important practical phase of the study of honey colloids is their effect on the "cooking quality" of honey to be used in candy making or for other purposes for which it is subjected to elevated temperatures. The low caramelization point of honey as compared with invert sugar syrups cannot be explained satisfactorily on the basis of its composition as represented by conventional chemical analyses, since honey, according to these analyses, is essentially a concentrated solution of the sugars levulose and dextrose accompanied by small percentages of sucrose, acids, salts, pigments, flavoring compounds, enzymes, etc.

A diluted buckwheat honey exhibited some interesting properties after removal of a considerable proportion of colloids by ultra-filtration and

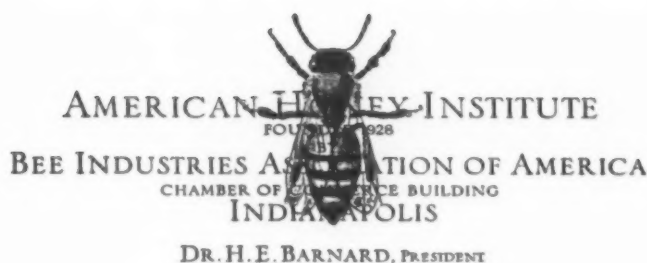
evaporation in vacuum to the original honey density. The original honey, when tested for its ability to withstand elevated temperatures (a standard "candy test" was used), discolored and caramelized long before the maximum temperature used in the test (290° F.) was attained. The same dark honey after removal of colloids was equal in cooking qualities to some of the best light honeys. When the colloidal material that was removed from this sample was dried in a vacuum oven at 160-170° F. it decomposed to such an extent as to resemble a mass of carbon. These results show in a striking way the effect that the colloids have on the cooking qualities of honey, and indicate that these substances are largely responsible for the low caramelization point of honey as compared with a water solution containing dextrose and levulose in the same proportions and concentrations as in honey.

A knowledge of the influence of colloids on crystallization of honey is also desirable, since crystallization is of considerable significance in the handling and packing of honey and also in its keeping quality, fermentation in many cases taking place after partial crystallization of the dextrose has left the liquid portion of the honey with a lower solids content than the original uncrystallized sample. The thinning action that dextrose crystallization produces on the liquid portion of the honey brings about conditions favorable to yeast activity.

Some Properties of Colloids Present in Honey

In the course of this investigation of honey colloids, some interesting properties of these colloids have been demonstrated. For instance, it has been shown that in most honeys the colloidal particles exhibit positive electric charges, but that in some honeys, notably those of the honeydew type, the colloidal particles have negative electric charges. We have found that the nature of the electric charge is dependent on the degree of acidity of the honey (which is best expressed in units of pH) and that at a definite acidity (pH 4.3) a neutral point, the so-called iso-electric point, is reached at which the colloidal particles do not possess electric charges, and tend to coagulate and settle out of the honey, leaving it quite clear in appearance. The colloids of a diluted buckwheat honey, for instance, coagulated and settled out when its acidity was near pH 4.3, but remained in colloidal suspension at pH values very far removed from this neutral point (either on the acid or on the alkaline side). By separating, drying and weighing the quantities of colloids coagulated at various degrees of acidity (measured

(Continued on page 291)



National Association of Retail Grocers Interested in Honey

THIS letter tells the story: "I am indebted to you for yours of April 19, and the literature regarding the Honey Institute and the National Honey Week—November 9 to 14. Certainly I shall be delighted to play this up in the October issue of the National Grocers' Bulletin, and perhaps direct attention to it also in the September issue. I shall also give brief announcements in issues between now and then. It occurs to me to ask if you intend to spend any money for advertising in the trade press,—with my principal thought for the National Grocers' Bulletin. If so, I now want to invite you to use the National Grocers' Bulletin, as the logical medium, and one that will give you results and a considerable amount of satisfaction in its cooperation with your program. I shall be glad to have you give this some thought if advertising is in the cards. I would suggest that a regular schedule in the National Grocers' Bulletin of institutional advertising carried by the American Honey Institute would be worth while." Signed C. H. Janssen, Secretary-Manager, National Association of Retail Grocers.

Now our program for National Honey Week will be brought before the grocers of the country. Grocers could sell much more honey than they do if they knew just a little about its food value and adaptability for making attractive dishes. Such announcements as Mr. Janssen plans to include will be very helpful, and surely if any of the larger honey bottlers carry special advertising during National Honey Week, it would be advisable to consider the National Grocers' Bulletin as a medium for such ads.

Puffles

Puffles—do you know what they are? Fruit-flavored puffles are made with milk, honey, fruits, nuts, health flour, and other delicious ingredients, we are told. Good Housekeeping Institute has tested and approved Puffles, and that adds to their prestige. Puffles are taking Indianapolis by storm; missionary breakfast parties, women's clubs dinners, men's clubs—all are being served puffles.

This morning two representatives of the Indiana Sales Division of Puffles called at the offices of American

Honey Institute and want to work out a plan whereby clusters of Puffles may be served with honey meringue as a dessert to the various groups to whom the Puffles Home Service staff is demonstrating the attractiveness of the Puffle service.

It's a splendid tie-up and American Honey Institute will take it up with the national office to see if this same type of service can be duplicated in other states. Every reader of the American Bee Journal should write Puffles Mfg. Company, Dundee, Illinois, and get a copy of Puffles leaflet and poster which shows that the fruit-flavored Puffles are made with honey.

Heinz Rice Flakes and Honey

At a picnic lunch recently some of the sandwiches were packed in an H. J. Heinz rice flakes box. One of the Institute staff was attending the picnic, and you know how delighted she was to find on the yellow box end, "Serve with milk or cream. If sweetness desired, add honey or sugar. Excellent with fruit or fruit juices."

Honey in Typewriter Ad

Even in ads exploiting such mechanisms as typewriters, we find references to honey. Rem Rand Notes, Vol. 6, No. 4, page 19, shows a picture of clover blossoms and a bee line made by the bee, which is also pictured. The introductory paragraph starts: "As a honey-making machine, the bee—bless her busy soul—is without an equal. But as a model for stenographers to follow in transcribing shorthand notes, her bee-havior is wholly bad."

Of course there is more to the copy showing how the stenographer cannot type or hit her keys in the zig-zag fashion the bee makes her line through the flowers, but the fact that clover blossoms are pictured and a bee working on the clover blossoms to produce honey is splendid advertising in that it brings to the mind of the reader clover honey—blossoms, bees and honey—a good and delicious food.

The First Air-Cargo Carriers

Who do you suppose they were? Natt Noyes Dodge, Seattle, Washington, very cleverly tells the answer in his story under that title on pages 42 and 120 in the May issue of Better Homes and Gardens. The drone,

(Continued on page 291)



EDWIN GOFF

Edwin Goff, on "Bees and Fruit" Wins Michigan State Essay Contest

When the Michigan State Horticultural Society opened a state-wide essay contest among the agricultural students in Michigan High Schools, there was no way to know the winner. At Blissfield High School, Edwin Goff, whose picture graces this page, with the subject of "Bees and Fruit," won the local contest at Adrian; was sent to Grand Rapids, and won the state contest.

Edwin is 18 years old, a senior in the Blissfield High School, and has kept bees several years. He chose his topic himself. It was not assigned. Yet it suggests what can be done, with assigned beekeeping topics, in other states. All Michigan was interested in Edwin's talk. Read it and see how well he has done.



THE bees are an essential factor in profitable fruit growing. Practical horticulturists throughout the United States have definitely established the fact that the addition of bees to the orchard during the blooming period will bring about maximum yields of high quality fruit.

Experiments with bees, conducted in old and new orchards, with trees covered to prevent insect pollination, and trees uncovered, show increased yields where bees are used, which pay for the additional expense several times over.

Many horticulturists have had the idea that fruit blossoms are pollinated by the wind as are the blossoms of many other plants, but this is not the case, for while wind-distributed pollen must be dry and powdery, that of fruit bloom is a trifle sticky and cannot be so distributed. The only way in which fruit bloom, with few exceptions, can be pollinated is by insect pollinators, and bees are best adapted for the purpose, because, first, they are present in sufficient numbers to be of value and can be easily controlled, if properly handled; second, bees are naturally adapted for pollen carrying, for it is used as a part of their food; and, third, bees generally, when gathering pollen and nectar, confine their visits to a single species of flower, thus providing for cross-pollination and eliminating a waste of pollen.

The development of fruit from fruit blossoms is a rather complex

biological process. The part which the bee plays in the development of the fruit, however, can be easily understood. I will take the apple blossom for an example.

The bee is attracted to the blossom by the beautiful white and pink petals at its base, to obtain nectar secreted at the base of the flower. In the center of the flower are a number of protruding stems, some of which are taller than the rest, with small enlargements at the top of each. Now in climbing about the flower the bee brushes against the smaller stems or stamens, or male parts of the flower, and becomes covered with pollen, which is distributed by the anthers, or small sac-like enlargements at the top of the stamens. When the bee rises to fly, it may brush against the taller stems or pollen-receiving tubes, called stigmas, and pollinate them, but pollination is more likely to take place when the bee alights on a second flower, for it is almost impossible for her to alight upon it without touching the stigmas, which are naturally raised above the stamens to prevent self-pollination.

The pollen grains readily adhere to the stigma, fertilization takes place and the fruit begins to develop. If complete pollination has taken place, all of the seeds will develop and a fruit of uniform size will be formed. If only partial pollination takes place, the blossom will dry up and fall off. You can thus see that if the horticulturist increases the number of pollinating insects he

can increase the number of blossoms which will develop into fruit, besides improving the quality through cross-pollination.

Cross-pollination furnishes another problem to the fruit grower. The addition of bees alone does not suffice. For the best results, the trees must be pollinated by pollen from some other variety.

Some fruits set seed with pollen of their own kind and are called self-fertile. Fruits which have to be pollinated by some other variety are called self-sterile, and when neither of two varieties will fertilize the other they are said to be inter-sterile.

Under Michigan conditions all of the standard varieties of apples must be regarded as commercially self-sterile. This list includes Baldwin, Delicious, Duchess, Grunis, Hyslop, Jonathan, McIntosh, Northern Spy, Rhode Island Greening, and Wealthy. Therefore the commercial orchardist should study the subject of sterility or fertility before planting fruits in large numbers. He should find out what varieties are needed as crosses for best results. Baldwins and Greenings, for example, will yield best when cross-pollinated with McIntosh and Delicious trees. Data on other varieties can be obtained from the Michigan State College at East Lansing.

When planning a new orchard the fruit grower can provide for cross-pollination by planting the fourth tree in every fourth row to the de-

(Continued on page 291)

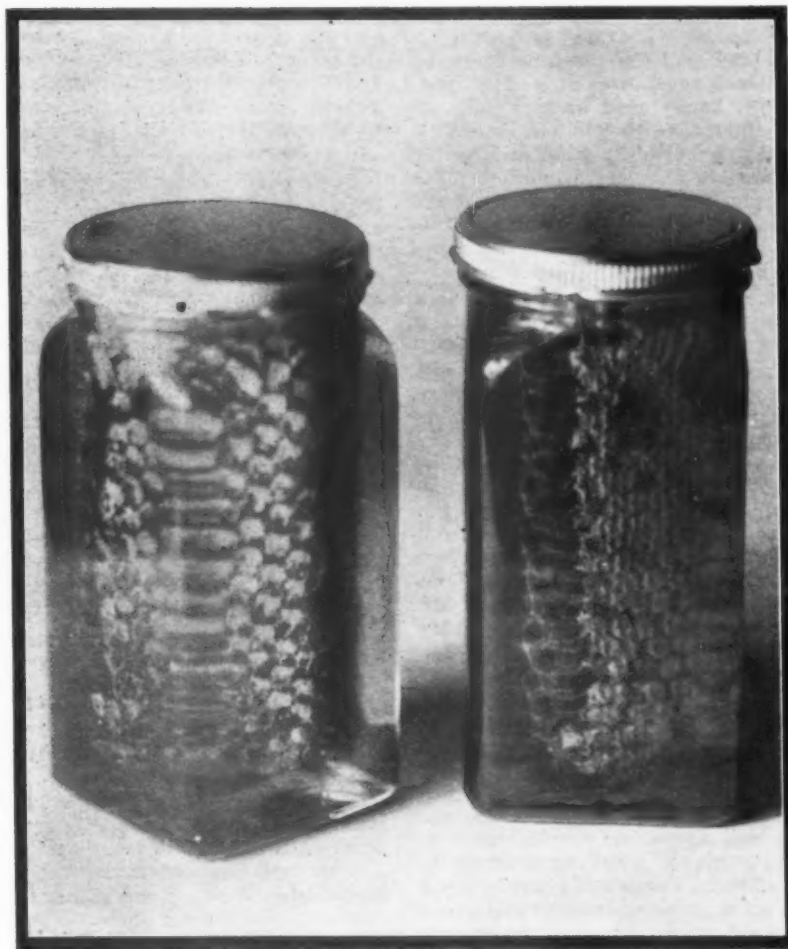
Here is a way to put up honey which is wholly in line with modern plans. We predict that, with proper selling, it will make its own market.

THERE is nothing that boosts the sale of an article more than the article itself. How it is prepared and containers used are of great importance. The eye must be attracted by its general appearance; then it is called for or lifted from the shelf, looked over carefully, and the decision is made that places it back on the shelf or drops it into the shopping basket. This is a vital point, indeed, and one that must be guarded closely in preparing the article. Don't let it get back to the shelf from the hands of the prospective buyer.

There must be no deception practiced. The article must come up to its appearance when opened and contents served. Each and every consumer must say that it is the very best and that he is pleased. The order, then, comes with the purchase of the next supply of food, "Include more of the same honey." This continues the sales after they have been once made because of the superior quality. This way of preparing food is coming more and more into prominence, and will do so right on.

In view of this, honey should be packed so as to display it as much as possible in its natural state—in the comb. The accompanying photograph shows more definitely how honey should be packed. This container is a one-pound square jar with mouth as large as the interior of it. Similarly constructed jars are made to hold larger and smaller quantities, and the height is always in good proportion to the size, so as to show up neatly.

The jar shown is a one-pound size because it is more commonly called for by honey buyers. It contains approximately 50 per cent comb, the remainder very clear liquid honey that will not granulate. It is packed cold, for no great heat can be used about the comb. The very thick liquid honey will well preserve the piece of comb suspended in it. This piece of comb will not granulate. It should be of different color from the liquid. The more color comb honey has, the greater will be the contrast and the more beautiful it will show up in the liquid.



A new type of honey pack, an all family jar, Wilder calls it, after the modern manner of display

A Glass Pack That Boosts Honey Sales

By J. J. Wilder, Georgia

The comb must be suspended in the jar so it will remain diagonally across the jar, and never sideways. This is easily done by having the piece of comb reaching from the top of the jar and firmly resting on the bottom. The pressure of the cap will hold it in place. When it is thus placed it will be seen that any way the jar may be turned both the capped part and the edge of the comb will appear, showing the cells filled with honey. This is very important, as we shall see further on. If the piece of comb is placed in parallel with the sides of the jar, then there is no great beauty or wonder about it.

The reflection of the corner of the jar in on the comb greatly magnifies it, and the cells and cappings are enlarged to twice their natural size. At the same time, on either side appear two very large, bright rays running parallel with the comb. These

move across the surface of the comb honey, on both sides at the same time, as the jar may be moved or turned, illuminating the entire contents so the prospective customer is struck with wonder. Honey is a most beautiful article of food when it is properly packed. Herein lies our greatest possibilities.

This is a family pack. Some members of every household prefer it in the comb, others prefer it in the liquid form; therefore, honey thus packed pleases everyone. They enjoy it to the fullest extent because they have just what they prefer.

In boosting honey sales this is a great feature, but there is another thing that makes the contents desirable. There are two separate and distinct flavors and sources of honey. While one is in the comb, the other is in the liquid, yet when it reaches the plate there is more or less mix-

ture of both, and the blend combines the best table qualities of both kinds of honey, and the constant everyday consumer never tires of it. The appetite for honey must be kept keen, so that the call for it will continue. This should be borne in mind and as far as possible in every container place honey of two different sources of the highest table quality possible. This will give variety and keep the appetite keen.

Does this jar meet the conveniences of the groceryman and those who sell food products? Certainly. Now-a-days grocerymen stack canned eatables in the middle of the floor where they may be easily seen, customers having to pass around them. Very large and high stacks, or pyramids, may be made with containers like these. They will stack up on the shelves or in the bins from bottom to top, and the top jars will rest firmly; no danger from shaking about or falling off, because the caps are large and flat. This is a feature worthy of great consideration because those who handle honey want to display it. We must look out for the greatest interest and convenience of those who handle our honey. They don't want it if it can't be easily displayed. Then, too, this square container will pack closely and the exhibit will appear as a solid mass of honey, which is a great attraction to the public. The labels placed on the flat sides of the jar show up more beautiful, also add much to the attraction. Bear in mind, we are boosting the sales of honey, and not of any special kind of jar, yet all to the praise of the proper kind of container. We are glad they are made and can be obtained from any glass manufacturer.

Looking at this way of packing honey from a beekeeper's viewpoint, there can be nothing but satisfaction, since it meets their convenience in every way. There is nothing unusual or hard about it; anyone with any knowledge of honey can prepare it for market. All dark grades of good table honey can be used as cut honey which supplies the comb for the pack, but of course this comb must be new, and never dark or tough. The dark honey is cheap, not because of the flavor, but because of the color. If it was extracted and put on the market it would only bring 4 or 5 cents a pound, if there could be a market found for it. Using it in such a pack, it would be of the very highest market value, therefore net the producer at least three times as much as if he had to use it otherwise.

The extracted honey, of course, must not only be of the very best flavor, but clear, so as to show up the darker chunk honey more beautifully and admit rays of light to pass through, reflecting against the comb and all around through the contents.

These rays of light are very essential and the clearer the honey the brighter the color will appear. The extracted honey must also be non-granulating, but the comb honey can be subject to granulation, as the liquid honey will preserve it.

Such comb honey is produced in regular shallow extracting supers, and where the one-pound jar is used the honey in the frame is just the right height, and all that is needed after the honey has been cut from the frame is to block it out in pieces just as large as the mouth of the jar. If this is done properly, there will not be any comb wasted.

In case the comb honey is produced in large frames, then it would have to be cut more, there being more waste in scraps of comb. These, of course, should never be placed in the jars, as the chunk must be perfectly whole. A large frame of honey can be cut with very little waste if great pains are taken in cutting it.

With all size jars it must be born in mind that the piece of honey suspended in the jar must reach from the bottom to the very top, or else the jar would show up a "scanty" pack, which would condemn it at once. In case very large jars are used, two pieces of comb should be placed side by side diagonally in the jar from corner to corner.

With some beekeepers the question might arise, Where can I obtain suitable non-granulating honey to make such a pack? This can easily be obtained on most any honey market at a very reasonable price, put up in 32-gallon barrels or 60-pound cans. The difference in the price paid and the price obtained after it is packed would far more than pay for the cost of packing. This places the possibility of such a pack within reach of all.

What Is "Extracted" Honey?

By W. H. Eastman

I have been rather surprised to know of the number of people who have such "hazy" ideas regarding the method we use when we harvest our extracted honey. Many people cling to the notion we crush the comb in some manner, then strain the honey through some sort of a sieve. Honey, I believe, should be advertised as extracted honey, but I notice wherever it is advertised it is as "strained honey."

Many small farmers and many laboring men seem to know little of modern beekeeping. Not long ago a man who operates a filling station at our county seat was heard to remark "all that bees did was to sting."

I have for a long time been of the opinion that in addition to present advertising some educational advertising should be put out. In this connection if a label for tin or other

container were prepared and on it a cut of an extractor in operation, also a cut of a beekeeper uncapping a frame, it would create a favorable impression. I might suggest that the following or similar wording would be good: "The food is not touched by human hands."

If one had a fair crop of honey, a poster or a collection of pictures large enough to be displayed in store windows would explain many things people do not know.

I would picture a well filled frame, a beekeeper uncapping same, placing it in the extractor, whirling the extractor, and the honey flowing into the container. Anything else of an explanatory or educational nature that might suggest itself could be used. These cuts could be used on a poster or made separate so a beekeeper could purchase and display according to his idea or needs.

Of course, these need not take the place of actual demonstrations live beekeepers might put on, but they would be very useful to sideline beekeepers who cannot take the time and trouble to give a demonstration. A live beekeeper could take kodaks and have them enlarged and display them in places where they would be seen. The price of enlargements is low.

Kansas.
(Extracting honey at fairs is a splendid advertisement.—Editor.)

As We See It—Abroad

Every time I read an article in the Bee Journal like that on page 108, "Trade Barriers," I feel like writing to the editor and congratulating him on the stand he has taken. These articles are quite different from one I read in another bee paper, where the author told about the splendid export business his state was doing, and about how much honey they had been able to ship to foreign countries. Then in the same article he mentioned about what a terrible thing it was that some honey was coming to the United States from other countries. He suggested that means should be taken to have the Government place a higher duty on honey so this foreign honey would not come into the country. It is hard to understand how one man could have both views at the same time.

S. P. H.

(It is a poor rule that doesn't work both ways. If we expect to sell to others we must expect them to want, to sell to us. With our vast production in all lines, America is in position to profit from foreign trade. In the above letter our correspondent also told us how he had been compelled to discontinue buying American goods because of the high duty which his country has recently imposed. Thus we lose a good customer because his country has followed the American example of raising the tariff to prohibitive levels.—Ed.)

Next Year's Plans—What Will They Tell You?

By J. W. Beatty

"THE best laid plans of mice and men gang aft agley," said Robert Burns, the famous Scottish poet. This statement is probably as applicable today as when made by the time-honored bard. In spite of the fact that well laid plans often go wrong, we must realize that everybody, including beekeepers, should look ahead and have some definite plans shaped out for future guidance. That plans do not always materialize is no reason why we should not make and try to live up to them. The fact that they often go wrong may be due to failure in carrying

Inventory (as of January 1, 1931)			
Bees and equipment	Unit	Price	Value
Hives of bees (including bees, bottom board, cover, hive body and three full-depth supers)	306	\$15.00	\$4,590.00
Extractor and honey pump	1		80.00
Storage tanks	3	15.00	45.00
Uncapping knife and steam generator	1		2.00
Capping melter	1		10.00
Four-wheel trailer	1		20.00
Car	1		350.00
Stoves	2	5.00	10.00
Gas engine, 1½ H. P.			25.00
Tools, supplies, miscellaneous, etc.			25.00
Total			\$5,157.00

them out, or it may be due to causes

over which we have no control. In any event, we should try to map out definite plans ahead and do our best to live up to them.

The most successful man, whether he be a farmer, manufacturer or business man, plans ahead, and his success is dependent largely on the judgment he has shown in making the plans and the care he exercised in carrying them out.

During the past few months the writer has had the privilege of taking a course in agricultural economics at the North Dakota Agricultural College, and one of the features stressed in this course was the planning of a farm problem. The writer, being a beekeeper, naturally chose a subject having to do with the management of his apiaries, located near Fargo. An inventory of all items, together with a statement of all receipts and expenditures based on prevailing rates and prices, is largely the basis of this problem. In this connection it might be said that the present business depression results in picturing the prospects as less encouraging than they would be if times were better.

Regarding the items under consideration, it may be said that the colonies are in good condition, having been placed in winter quarters well provided with stores, and are wintering well. The colonies occupy factory-made standard ten-frame hives, well painted and nailed, and the same type of equipment is used for extracting supers throughout. The colonies are run for extracted honey production, and the uniform equipment used, including hives, frames, etc., facilitates the work.

Depreciation on hives and related equipment is figured at 5 per cent per year, which is practically the same for wooden buildings. The writer has kept books on his receipts and expenditures for his apiary, and this serves as a guide in making plans ahead. Honey production is figured on the basis of 150 pounds per hive, which is a conservative estimate of a ten-year average for the Red River

Receipts				
Commodity	Average	Yield	Price	Total
Honey	150 lbs.	45,900 lbs.	\$.06	\$2,754.00
Wax	3 lbs.	918 lbs.	.20	183.60
Total receipts				\$2,957.60
Disbursements				
Labor—Two months at \$90 per month			\$180.00	
Extra labor			40.00	\$ 220.00
Rent				
Cellar location			20.00	
Extracting locations			20.00	
Two summer locations			20.00	60.00
Upkeep				
One hundred queens at 50c			50.00	
Thirty packages bees at \$3.25			97.50	
3060 pounds sugar at 5c			153.00	
Paint, etc.			50.00	350.50
Car and Trailer Expense				
Gas and oil			150.00	
Tires			70.00	
Repairs			20.00	240.00
Containers				
375 double sixties (cans and cases) at 90c				337.50
New equipment				
Hives and supers for fifty colonies at \$15				750.00
Total disbursements				\$1,958.00
Inventory as of January 1, 1932				
Hives of bees (including bees, bottom board, covers, hive body and 3 full-depth supers)	356		\$15.00	\$5,340.00
Extractor and honey pump	1			80.00
Storage tanks	3	15.00		45.00
Uncapping knife and steam generator	1			2.00
Capping melter	1			10.00
Four-wheel trailer	1			20.00
Car	1			350.00
Stoves	2	5.00		10.00
Gas engine	1			25.00
				\$5,882.00
Depreciation				
Car			\$100.00	
Machinery at 10 per cent			19.20	
Wood equipment at 5 per cent			267.00	\$386.20
Value at 1932 inventory				\$5,495.80
Average capital				5,326.40
Summary				
Receipts				\$2,937.60
Inventory increase				338.80
Total				\$3,276.40
Expenses—Cash				\$1,958.00
Farm income				\$1,318.40
Interest at 6 per cent				319.58
Labor income				\$ 998.82

Valley section in which the apiary is located.

Losses and Costs of Replacements

Basing the figures of losses and costs of replacements by the experience of the past, it is a fairly simple matter to present a summary of this. Considering the average wintering and spring hazard, it may be said that one can figure on having to restock 10 per cent of the hives with package bees each spring, on account of losses. Furthermore, for an apiary of about three hundred colonies, at least one-third this number should be requeened each year. From the benefits to be received later, I make it a practice to feed an average of ten pounds of sugar, in the form of syrup, during early spring. This is a good insurance against starvation and helps the colonies to build up to proper strength for the main flow. I am planning to increase at the rate of fifty colonies per year (by artificial increase and swarms) until I have five hundred colonies in the apiary.

Cost of replacing winter loss:
Thirty packages at \$3.25—\$ 97.50
Cost of spring feeding:
Ten lbs. sugar—306 colonies, 3,060 lbs. at 5c lb. 153.00
Cost of requeening:
One hundred queens at 50c each ----- 50.00
Cost of hives for increase:
Fifty hives at \$15 each— 750.00

Labor and Finances

It is reasonable to expect that one man besides the owner will be needed during the extracting season. The type of help required may be secured for a wage of \$90 per month; also, extra help will be needed during the fall and spring when the bees are to be moved to and from the cellar. Otherwise, the owner can get along between times without outside help.

Unless the beekeeper owns the property, it is the usual custom to pay the owner of the land upon which an apiary is located a rental. This may be estimated at ten dollars per location (exclusive of buildings) and may be paid in cash or in honey, depending on the agreement made. I believe it is a good plan to have a five-year lease on the apiary site, on which the bee cellar and central extracting house is located. Usually one can find a good location with a building which, if reconditioned, will serve for the extracting house. In case a cellar is not available, a good one may be built at a cost not exceeding \$100, which, if considered on a rental basis, would be \$20 per year for the five-year lease.

It is realized that the above figures do not apply to every locality, due to variation in yields of honey and various prices prevailing. However, the general plan is workable.



More Adventures of the Bee Fairies

By Aunt Laura

AT the conclusion of Fuzzy Face's story all of the group were silent, glad indeed that the little girls had been able to do their friend so good a turn.

Then an elderly bee with tattered wings, who had been introduced as Hum, spoke: "As to losing hope, that is indeed a most unhappy condition. A very long time ago, quite as far back as I remember, I had an adventure when I learned what it means to lose hope."

"Oh, please tell us," begged Doris May, and the children all drew close to listen.

"It was late this June. The days were extremely warm, but the nights cool, as you may remember. We were short of help and our babies needed pollen; so, although I was very young and inexperienced, I was allowed to go after some. For quite awhile I hunted in vain, then finally I discovered some hidden deep in the hearts of a group of those very late tulips, the fuzzy, frazzled, new-fangled ones. I found them very rich in pollen and they gave me a wee taste of honey, but they are certainly the most decidedly inconvenient style of flower imaginable for us bees. I was exceedingly happy when I found that pollen, and hurried from flower to flower, eager to carry home the very biggest load possible to show them there."

The bees nodded understandingly and the children waited quietly for the rest of the story.

"Although I was decidedly tired, being an ambitious young thing, with each tulip I visited I wanted to get just a little more, so I crammed into my baskets every bit I could possibly carry and then dropped down to rest in the fuzziest, most frazzled tulip of all. I suppose I stayed longer than I thought, for when I was ready to start for home I found to my great alarm that the pesky flower had closed its petals tight. I was a prisoner! I could not get out, try as I would to push the petals back. It

was of no use. I tried and tried over and over again. Then it began to get chilly, very chilly, and what with the cold and my worry about not being able to get out, I was nearly distracted. To be sure, I knew it would be apt to warm up next day; but what would the family at home do without my splendid load? And what would they think of my staying out all night? I was unhappy and frightened and discouraged, and the more I tried to creep out the tighter the ragged petals held me there. I just lost hope and lay down to die."

Hum paused and kindly little Doris May asked sympathetically, "But you got home?"

Hum laughed. "Dear me, yes. After what seemed ages, I fell asleep, and when I woke up I was comfortable and snugly warm, and out between the frazzled petals of that tulip I could see a bit of the most beautiful blue sky with a white cloud floating by, and the sun was shining down upon the world in its most cheerful manner."

"And did they miss you? Were they glad to see you home?" inquired Dickey as Hum concluded.

"That's the funny part of it all," she laughed. "There I had been so worried about their losing my fine pack of pollen; but when I arrived at home no one took any notice of it, nor did anyone seem to realize I had spent the night away from home; but, honestly, I was so happy to get back safely that I forgave everyone, though I have never forgotten how it feels to lose hope."

"But supposing it had stayed cold or the sun had not come out that next morning?" inquired Robert.

"Oh, then I would surely have died. You see I had eaten some honey as I flitted from tulip to tulip, and that produced enough heat to keep me warm a little while, for, as you know, honey is our heat producer, and if we run out of it we just get colder and colder until death comes."

"Like the furnace when we forget to put in coal?" inquired Dickey.

"Exactly," returned Hum. "One bee alone cannot keep warm for any length of time. The sun came out and warmed me, or I would have died with abundance of honey."

"But what do bees do in winter?" asked Mildred.

"Then we snugly cuddle into a tight cluster within our houses, and, by crawling into empty cells to take up as little room as possible, we remain very quiet, thus not wearing ourselves out with any unnecessary movements, and by eating just enough honey to keep us from freezing we usually get along nicely. If anyone on the outside of the cluster gets chilly, she pushes toward the center, and thus we live through the winter, conserving both our strength and our store of honey to be ready at the peep of spring to begin working, carrying water, gathering pollen and nectar, nursing our precious babies to get the family built up strong enough for the summer's harvest and ready to carry on our work."

"My gracious!" exclaimed Robert. "Last winter when we were out coasting and snowballing at Christmas time, were you all right here just resting and waiting for spring?"

Hum smiled. "No, dear, we were not, for none of us, unless it is those of us you know as fairy bees, came into this world until midsummer; but most of the bees that were in the colony last fall wintered over and were the ones to start the colony out this spring."

"How long does a bee live, anyway?" inquired Dickey.

"That depends, my dear," was the answer. "Bees reared in the fall, as I say, live through the winter, if all goes well; but bees reared in the spring and summer, working as hard as they do throughout the harvest, may not live over two or three weeks. Remember this: The length of a bee's life is determined, barring accidents, of course, on the amount of work she does. The harder a bee works the sooner she wears out and dies."

"Then I don't see," exclaimed Robert, "why you work so hard. I should think you would take it easier and live longer."

Here Fleet Wing spoke: "You forget, my dear, it is as I told you before: Bees work for the best interests of the entire family, the colony, not for the interest of any individual."

"Yes," resumed Hum. "Supposing we bees lived a long time, a year say. If all the bees needed to do the work of a colony in summer lived over the winter, think how much more stores they would need to feed them. There would probably be so many it would take all we could store up in summer to feed us during the winter, and nothing would be left to start spring

(Continued on page 292)

Clear H Crystal
HONEY JARS
will sell your honey

No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern, and Strength in Construction.

4 SIZES Individual, Half Pound, One Pound and Two Pound Accurate Graduation.
WRITE FOR SAMPLES AND PRICES.
HAZEL ATLAS GLASS CO.
WHEELING, W. VA.
WORLD'S LARGEST MANUFACTURERS
GLASS FOOD CONTAINERS



Save Time--Save Worry

Dadant's New Crimp-Wired Foundation

Can be nailed into Lewis Slotted Bottombar Frames in a jiffy.
And such wonderful combs!

Sold by all dealers in Lewis Beeware
and Dadant's Foundation





CARNIOLANS

Prolific at all times, very gentle, best of winterers, rapid to build up during the trying weather of the spring, build beautifully white combs and are most excellent workers. Qualities demonstrated by 25 years using them. My own strain and Jan Stigar imported.

Untested queens, one	\$1.25
Untested queens, dozen	12.00
Tested queens, each	2.00

CAUCASIANS

Breeders from the mountainous province of Terek, Caucasus, tested during 1930, and that show true Caucasian traits; more prolific than Italians; long tongues, unbelievably gentle and most excellent workers. Some fine testimonials coming in from last season's queens. Wintered and reared here in the North under climatic conditions like their native land, thus preserving their good qualities.

Untested queens, one	\$1.35
Untested queens, dozen	13.25
Tested queens, each	2.25

ALBERT G. HANN
Glen Gardner, New Jersey



**PORTER
BEE ESCAPE**
Saves Honey,
Time, Money

R. & E.C. PORTER, Mfgs., Lewistown, Ill.
(Mention American Bee Journal when writing)

Latham's Queens
"She-Sute-me" Queens
are line-bred three-banded
Italians

This strain of Italians is unsurpassed in tongue-length and also in nectar gathering

1 untested laying Queen 80 cents
6 for \$4 50 for \$31

Allen Latham
Thorwicktown
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Season May 30-June 1

BEE SUPPLIES

for
**WESTERN CANADA
BEEKEEPERS**

Catalogue free

S. P. HODGSON & SONS
New Westminster, British Columbia

YELLOW Italian QUEENS

producing pretty three-banded bees; from the oldest strain in the State of Indiana. I use the egg in producing all my queens; this is the finest method known. All desirable qualities are to be found in the work of both bees and queens. \$1.00 each; six for \$5.00. Breeder, \$4.00.

R. W. BALDWIN

Route 4 Greencastle, Indiana

ATCHLEY BEE GLOVE

All pure white heavy duck, 22 inches long. Washable while on hands. Absolutely sting proof. Postpaid:

75c PER PAIR

Discount to dealers

WM. ATCHLEY

144 Campus Ave., Upland, California

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

PUTTING BEES IN THE ORCHARD

Please send me your experience about putting bees in an orchard where they spray the trees for insects. Must I move my bees after blossom time? I would like to leave them in the orchard the year round.

An owner of a large fruit farm wishes to have me place some bees in his orchard for cross pollination, but I am afraid the spray mixture would lessen the strength of my colonies, or even kill all of them. What would you advise?

2. I am a reader and subscriber to the American Bee Journal, but would prefer having my questions answered by mail. Would like to know if this service is free to subscribers or not. I've read the Journal's question page, but did not find where there was a service charge printed.

ILLINOIS.

Answer—1. There is no need for poison mixtures to kill your bees. They should be used after the bloom falls. Poisons are not beneficial to blossoms during bloom. It is the fruit which must be protected, and your fruit farmers should know that. They should also know that anything which hurts the bees is injurious to fruit prospects.

Get your farmer friends to understand that they should not spray during bloom. They may spray before bloom, but it is right after the bloom is gone that the sprays are beneficial, and also for some time afterwards. They should not spray late enough to poison the clover bloom, for this not only hurts the bees but also the live stock that feed on it. Tell them to ask any authority on fruit and they will tell them the same thing.

2. We always answer questions by mail when a stamp is enclosed to pay postage. There is no charge for replying to enquiries, as these replies are beneficial to all the readers.

BEES INJURING FRUIT

1. I am in trouble. Lately I moved some of my bees to the country where my friend owns several acres. Within about half a mile a neighbor farmer lives, and he has a dozen grape vines in an arbor there, and a few fruit trees, and he complains that the bees are going to make trouble; he said that he won't have anything this coming season. I know bees can't puncture skins of the grapes. What would you tell that ignorant? It would be a sad world without bees; we wouldn't have any fruits.

2. One of my colonies in the home yard; every day a few bees come in front and their bodies are distended as large as a queen. They have some impure stores. I didn't feed them any syrup last fall.

3. I know you have more bees than I do; I have only one hundred colonies, but always have trouble. I must move them from one place to another. When I ask some farmer to give me some ground for them, he says, "I do not want to be bothered with them." Of course I want to pay him for that, 25 cents per colony.

4. Just a few days ago I wanted to interest one man to put some bees in his apple orchard and he said apple trees don't need bees to pollinate; he said wind does that. He was an old-style man; I couldn't tell him anything.

ILLINOIS.

Answer—1. It may be that the man in question will not believe us, but you can tell him that we had about fifteen acres of vineyard when we lived at the farm and that the bees did not damage them. The only damage is done by birds, especially robins. After they puncture the grapes, the bees may get into those damaged grapes, if there is no honey, but if there is honey in

the fields they do not even go into the damaged grapes. At any rate, they take only what would spoil in a day or two. The birds go into the vineyard early in the day, about sunrise, and fly away, so that you do not realize that they are the ones that do the damage. I have shot as many as sixty-five robins in the vineyard before breakfast. That is the time of day when they help themselves.

2. The bees whose bodies are distended have fed on bad food. You should remove all bad juice from the hives in the fall. Fruit juice is bad for them, especially if it is grape juice which is already fermented, as all fruit juice ferments as soon as it is exposed to the air.

3. We always pay liberally when we put bees out; so it pays the man on whose farm they are and he is glad to have them.

4. We are sending you a little pamphlet on the use of bees in orchards. Every man who gives the bees a fair trial is glad of it afterwards. The wind does a little in pollinating fruit, but the bees do ten times as much, because they carry the pollen from flower to flower. Ask any orchard man who has tried bees and he will tell you.

FERTILE WORKERS AND VIRGINS

1. I once found a hive of fertile workers which had two queen-cells containing an egg each. What would have happened if they had been allowed to hatch?

2. State the behavior of a colony where there are three or four virgins just hatched and three or four cells of varying ages yet unhatched.

3. When a desirable virgin has hatched out first and a number of cells left, I sometimes doubt my ability to find and destroy them all. I have thought that I would exchange all the brood with that of a queen-right colony. Would this cause the queen-right colony to swarm? Or would they promptly cut down all cells?

CALIFORNIA.

Answer—1. Those queen-cells would have either hatched drones or the larvae would have died. When drone larvae are given the same food as queens, they cannot live to full growth. It is probably too rich for them.

2. Usually the first hatched queen destroys the other cells and very often kills the other young queens, for the first hatched is usually the strongest. A newly hatched queen will work very hard to tear down a queen-cell.

3. Whether the queenright colony would swarm when you give it some ripe cells depends upon the conditions. If the season is very good and they have some tendency to prepare for swarming, they may swarm after these cells are given them. But as a rule, I believe they would destroy those strange cells. But you need not worry about destroying queen-cells after the first queen hatches. She generally attends to it, unless the bees want to swarm twice. After the first swarm goes out, you will have less difficulty in finding the queen-cells.

WHAT KIND OF DISEASE?

Several years ago I had American foul-brood. I "cured" my bees of it, as I thought, very successfully. Last year, about June 20, I noticed a particular hive having a brood infection. By September about one

cell out of every twenty or thirty was infected. But this particular hive never grew weak, producing over two hundred sections last year. They are Italian bees. This spring the infection has showed up again, but I could only find twenty or so cells in all the hive infected. The hive is very strong. All the cells infected are uncapped young larvae. I have never found an infected bee in a capped cell. The larvae at first are rather yellow. They later turn darker. But the larvae never sticks to the cell walls. Turn a comb over and some will fall out. The larvae never sting, either, one being able to remove the larvae intact. KANSAS.

Answer—The disease which you describe is not the real American foulbrood. The true foulbrood usually does not attack the young larvae and it is very sticky. This is European foulbrood, or some other trouble with which we are not acquainted.

To treat European foulbrood, we usually remove the queen and, after a few days, give the colony a new queen. The only point of importance is to have the colony without unsealed brood for a few days. This was suggested by Dr. C. C. Miller, who had the disease in his apiary.

If your colony is strong and healthy otherwise, it may not be necessary to change the queen. But if you are afraid that the disease will increase, take the queen out, keep them queenless a couple of weeks, then introduce a young queen.

SWARMING QUESTIONS

Today I had a swarm issue with an old queen which was unable to fly. I hived them in a ten-frame hive. April 19 I had a swarm from one of my best honey-producing colonies with a good queen, which I hived in a super.

I want to kill the poor queen in the hive and give them the good queen from the super and unite the bees in the super with them. How can this best be done? Would it be safe to cage the good queen and put her in the hive after killing the other and then place queenless super on top at same time with paper between? Or would it be best to let bees in super remain queenless a few days until queen introduced to hive is accepted, and then unite? I inclose stamp for mail reply. ALABAMA.

Answer—Sometimes a queen is unable to fly, not from old age, but from being overloaded with eggs. However, if the queen is old it is easy enough to recognize and it is best to do as you suggest in your enquiry. The best plan is to kill the queen you wish to get rid of, feed the bees well, in both hives, cage the good queen in her hive, then unite the queenless bees to the other colony as you suggest, or shake them in front of the other colony, after smoking them well. The hives should be near each other, or you will lose some bees.

TO OPERATE WITHOUT EXCLUDERS

On page 182, in the April number, you state that you use no queen excluders. I am a beginner, and would greatly appreciate if you would tell me how you prevent the queen laying in the supers without excluders. MANITOBA.

Answer—We use large hives, deeper by about two inches, in the brood frames, than the regular Langstroth; so our queens have much more room to breed. Besides, we do not allow any drone-comb in any part of the hive, even in the surplus combs, except in the hives from which we wish to rear drones. We find that the queens do not seek the supers, except to put eggs in drone-cells, if there are none in the brood chamber.

In this way, we have so few queens laying in the supers, especially when those supers are shallow, that it does not pay us to use the excluding boards. These excluders are always more or less in the way of the bees and lead to swarming.

Every spring, our hives are examined, and wherever we find drone-combs we remove them and put worker foundation in

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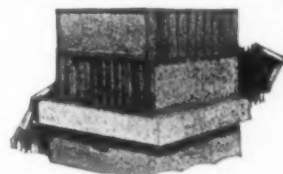
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American Bee Journal

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their place. Some people imagine that drones are needed, but they are needed only for mating with the young queens, and we allow the rearing of only choice drones. There are a few hundred reared in corners of most of the hives, but the thousands of drones usually reared in ordinary hives are not to be found in ours.

RACES OF BEES

Could you give me the names and addresses of some bee men who have bees other than Italian? Also the names of the different breeds of bees and their qualities and habits?

I have been raising bees here in Alberta for the last twelve years and wish to experiment on several different breeds this year. I have the Italians and Caucasians now. Is there such a bee as the golden bee? ALBERTA.

Answer—Italian bees selected for their color are sometimes called "golden." But there is no such bee as a golden bee. The yellowest have several yellow rings, and these rings are a little brighter than the three yellow rings of the pure Italian.

Caucasians and Carniolans are grey bees, although there are some very yellow bees in the Caucasus. Those different breeds are usually quite gentle, but their crosses are often cross. Besides, there are the Cyprian bees, which are usually very cross.

You can find the addresses of breeders and dealers of the different races in the American Bee Journal advertisements.

FOUNDATION HELD OVER

1. Does foundation lose its value if put in the frames and left in the hive unused from last season?

To make this clear, the foundation was put in the hive last summer and the bees did not use all and winter killed. Is this foundation all right to use again?

2. Do ants and crickets have any effect on bees? I noticed some entering a weak colony last season.

3. How can I tell the difference between Italian, Caucasian, and Carniolan bees?

4. Any information on foulbrood will also be appreciated. MICHIGAN.

Answer—1. The foundation in frames from last season is just as good as fresh foundation; only it is a little harder and will have to be softened by the bees' heat before it may be used by them. But if you take a sheet of it and place it in the center of a strong colony, you will see the bees use it promptly as soon as they have use for it. However, it may happen that before it is removed from the outside of the combs the bees may take little chips of it to use in building combs nearer the center of the brood nest.

2. Ants and crickets are not likely to enter a strong colony of bees. If you see them enter a colony, that is a sign that the colony is weak. They cannot do it any harm, however.

3. Italian bees have three yellow rings, or leather-colored rings, on their abdomen close to the thorax. Some Caucasians are partly yellow also. But the Carniolans and Caucasians are more gray than yellow. All these races, if pure, are very peaceable.

4. As for foulbrood, you had better read some pamphlet in regard to it, for it is not a matter to be trifled with and it would take too long to describe it and the remedies in a question and answer article.

AGAIN—NO EXCLUDERS

On page 182 of your April issue, under the caption "Queen Excluders," you say "We do not use any excluders in our apiaries."

1. If just as good results can be obtained by not using an excluder as by using one, why use the excluder? In running for extracted honey, is it not a fact that the queen will confine her egg laying to the upper hives, or supers, and not use the lower, or brood hive? Or, will she use the lower or

The Colloidal Constituents of Honey and Their Influence on Color and Clarity

(Continued from page 281)

in pH units), it was found that the maximum quantity is precipitated from honey when the degree of acidity is at the iso-electric point (pH 4.3), and that the quantity of the colloids coagulated decreased quite rapidly at degrees of acidity of the honey either lower or higher than pH 4.3.

Removal of Colloids from Honey by Treatment with Bentonite

When bentonite (a colloidal clay) is mixed with water the individual particles of the clay exhibit negative electric charges, so that neutralization of the positively charged colloidal particles in honey takes place when the honey is mixed with a suspension of bentonite in water. This results in coagulation and settling out of both the bentonite and the colloids of the honey. By treating diluted honey of approximately 40 per cent solids with appropriate quantities of bentonite, a large proportion of the colloids in honey is coagulated and settles out. After filtering off this coagulated material and evaporating in vacuum to the original honey density, a **brilliantly clear** honey somewhat lighter in color than the original is obtained.

Candy tests made with bentonite-treated buckwheat honey gave results similar to those obtained with ultra-filtered buckwheat honey, again showing the beneficial effect of removal of colloids from the standpoint of the ability of the honey to withstand heating without excessive discoloration and decomposition. The brilliant clearness of bentonite-clarified honey is a valuable asset, since clarity and fine appearance are very desirable in honeys packed in glass containers, particularly when competition with brilliantly clear syrups packed in glass is considered. In this connection it is interesting to note that the turbidity of honey is due almost entirely to the presence of colloidal substances. This is very apparent when a honey that would ordinarily be regarded as clear is compared with the same honey after clarification with bentonite.

The only difficulty in the bentonite method of treatment of honey for commercial use lies in the dilution with water and the necessity for concentrating the clarified diluted honey back to the original honey density. Even under the most favorable conditions of concentration in vacuum, this procedure involves expense for evaporation of water and some loss of volatile flavoring constituents, which is not desirable, especially in the case of light honeys of mild

flavor, such as clover and sage. In the case of dark honeys of strong flavor, a moderate degree of dilution with subsequent concentration in vacuum is not objectionable so far as loss of flavor is concerned.

Clarification of honey by use of bentonite without any dilution of the honey whatever is, however, in all probability the only feasible procedure, if this method of producing brilliantly clear honey of higher caramelization temperature is to be of commercial value. We are continuing our experiments in the endeavor to find some way in which the honey can be clarified by bentonite without dilution. We may add that the bentonite has no adverse effect whatever on the honey. Its only effect is to remove the very small quantity of colloidal substances which are responsible for turbidity of the honey and also, to a considerable extent, for its low caramelization temperature when heated. The bentonite is, of course, coagulated and removed from the honey together with the honey colloids. We are also investigating further the composition and origin of the colloidal constituents of honey.

American Honey Institute

(Continued from page 281)

queen and worker bee are reproduced from Dadant's Beekeeping and as well some cells filled with nectar. Better Homes and Gardens is going into many thousands of homes, and it should indeed be stimulating to those interested in honey to see such a fascinating story of our honey producers finding its way among the pages of this excellent magazine.

Honey Recipes in This Same Issue of Better Homes and Gardens

And to think that in addition to the story of the bees and how they produce honey we should find in the Cook's Round Table two honey recipes. This discussion of the Cook's Round Table is built around a luncheon or dinner entertainment for children. Here's the suggested menu:

Bo Peep Surprises
Tiny New Beets Buttered
Spinach Sandwich Rolls
"Chilled Chocolateade"
Fruit Ice Cream

Of course you want the recipes:

Chilled "Chocolateade" — Four squares of sweet chocolate cut into pieces, one cupful of boiling water, one-fourth cupful of honey, one-half teaspoonful of salt, six cupfuls of milk, one cupful thin cream, one teaspoonful of vanilla. Mix the chocolate, boiling water, honey and salt, then cook over a low fire until smooth, stirring constantly. Heat the milk and cream to scalding and add gradually to the chocolate mixture,

stirring until well mixed. Cool slightly and add the vanilla, then cover and place in the refrigerator to chill. Serve cold, but without ice added, in mugs or in glasses with sippers.

Fruit Ice Cream—One cupful of crushed fresh or canned peaches, one-half cupful of crushed strawberries, one ripe mashed banana, juice of one lemon, three-fourths cupful of honey, one and a half cupfuls of milk, one-half cupful of cream or evaporated milk. Mix the crushed fruit and lemon juice and press through a coarse sieve. Add the honey, milk and cream slowly to the fruit mixture and pour into a two-quart freezer. Pack with ice and salt and freeze. Let stand three hours and serve.

National Honey Week Announcement No. 2

This month American Bee Journal readers who are interested in proper preparation for National Honey Week, which will be held November 9 to 14, are going to make it their business to talk to their local grocers about special cooperation during this week. Now is the time to tell your grocers some of the fine exhibits you are planning to make for him and that from coast to coast grocers are tying up with this program.

Read the letter written by C. H. Janssen, secretary-manager of National Retail Grocers' Association, to American Honey Institute, and that will perk up their interest. They will be watching for Mr. Janssen's announcements, and more and more as the months roll by their interest will grow. If you stop in and talk to the grocer each month, telling him what your bees are doing, invite him out to your apiary, and show him some of the delicious food combinations made possible when honey is used, you will surely receive his sincere support and all of the preliminary steps will have been removed so that when November 9 to 14 comes you and he will be set to make the **honey sales**. Start now with your grocer.

Edwin Goff, on "Bees and Fruit" Wins Michigan State Essay Contest

(Continued from page 282)

sired cross variety or by top grafting a branch of the cross variety to the young tree. In an old orchard cross-pollination can be provided for by placing large bouquets of blossoming branches of the cross variety in tubs about fifteen feet away from each colony of bees, so that the bees will carry the pollen from them to the other trees.

Other recommendations that should be carried out for the best results in pollination and practical care of the bees are as follows: The bees should

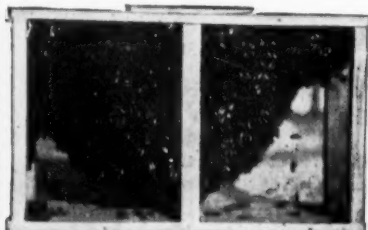
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Reared from the finest, gentlest and most productive stock we can select from our one thousand colonies. They will not disappoint you. Why have any weak colonies or inferior stock when you can have the best at such a low price?

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Combless Packages for Immediate Shipment

With queen	2 lbs.	3 lbs.
1 to 5, each	\$2.50	\$3.25
6 to 15, each	2.25	3.00
16 to 50, each	2.00	2.75

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Our queens are large, uniform, and very prolific. Their progeny are gentle and excellent honey producers. None better on the market.

Single queens, \$1.00; two to nine, 80c each; ten to twenty-four, 70c; twenty-five and over, 60c.

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be distributed through the orchard just before the blooming period at the rate of one strong colony per acre. By strong colony I mean one which has a large number of bees and at least seven to nine frames of brood or developing bees. The bees should be removed before the orchard is sprayed, and the trees should not be sprayed while in full bloom, for not only will a large number of blossoms be ruined but many bees will be killed, both of which results are undesirable.

It is not sufficient for the orchardist to depend upon his neighbors' bees for pollination purposes. While under favorable conditions bees a mile away would be of some value, bees which are more than one-half mile away in a cold or rainy season would be practically worthless. The bees should be distributed through the orchard during the blossoming period for best results.

Now to sum up my talk, let me again state the important point: First, fruit pollen is not distributed by the wind. Cross-pollination by insects, mainly bees, is absolutely essential. Second, only good, strong colonies of bees should be used. They should be distributed at the rate of one colony per acre, while the orchard is in bloom. Third, avoid spraying while the trees are in full bloom.

Michigan.

Adventures of the Bee Fairies

(Continued from page 286)

with. Indeed it is one of the marvelous decrees of our Heavenly Father, and the very fact that bees are short lived makes the life of the colony longer."

"And won't any of you bees winter over?" asked Mildred sadly.

Hum laughed. "Not one of us, unless, of course, we happen to be fairies, and fairies are a law unto themselves, aren't they, Fleet Wing?"

Fleet Wing nodded. At that moment a bee, a newcomer and stranger, bustled up to the little group and bumped vigorously against Hum, Fleet Wing and the children.

"Oh, pardon me!" she exclaimed as she hurried along, bumping each bee as she passed and to the children's surprise leaving behind her an unmistakable and deliciously delicate odor.

"What is that?" inquired Dickey, sniffing.

"How queer she acted!" exclaimed Mildred, readjusting her wings primly, and Robert added as he brushed down his velvety coat with his left front foot, "Just smell that, will you? What is it? Let's get us some."

"Hum, it smells better 'n all Grandma's Thanksgiving dinners," added Dickey. "But she certainly gave me a dirty push."

"Yes," returned Fleet Wing, laugh-

ing and exchanging glances with Hum. "I must admit she is a bit rough, but that sort of enthusiasm is quite pardonable. Did you get the message she was trying to convey to you in our own language?"

The children shook their heads.

"Ah," explained Fleet Wing, "she was telling us a new source of nectar is found and it is up to us to get our share."

"Indeed, and it suggests what my great aunt described to me as heart's-ease," said Hum, thoughtfully. "Do you reckon that flow has begun already?" Then she added, excitedly, "Come. Instead of standing here sniffing and talking about it, suppose we go and see!"

"Yes, suppose we do!" exclaimed Fleet Wing, and the children cried, "Yes, yes!"

However, Robert turned to their guide and asked: "Wait, please tell me. I don't understand. Do tell me why she gave me that awful punch."

Fleet Wing laughed. "That is part of our sign language too. Don't you understand? She bumped you and gave you a smell of her treasure."

"Oh, yes," cried Dickey, "I know. And when other bees get bumped and smell that odor, they know it is a signal and all want to go and get some?"

"Exactly," returned Fleet Wing.

"Well, come on, then," cried Robert, eagerly leading the way. So with a sip or two of honey from the nearby cells to invigorate them, the bee fairy children, Fleet Wing and the rest started to the door of the house.

Strengthening for Comb Honey

In comb honey production, if colonies are not very strong and there is a good prospect for a honeyflow, it is often advisable to shake two or three or more colonies into one hive, using full sheets of foundation. The brood may be used to strengthen weak colonies and the surplus queens caged and used wherever needed. Of course, only adjacent hives should be shaken together. It is important that each colony shaken be well smoked and the hive drummed until the bees fill themselves with honey. In drumming, use a hammer or something else heavy, remembering that it is the jar and not the noise that is effective.

E. S. Miller, Indiana.

Another Garden Book

"Perennial Gardens" is the title of a new book by H. Stuart Ortloff, which tells how and where to use perennials in the garden, how to select the right kinds and how to care for and propagate them. The book is published by the Macmillan Company, New York, and sells for \$1.25.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Cook-Du Page Beekeepers' Association Meeting

The eleventh annual spring meeting of the Cook-Du Page Beekeepers' Association (Illinois) was held at the New Bismark Hotel in Chicago on April 20. The program was entirely in the hands of members, Mr. W. C. Young, Mr. Wooldridge and Mr. A. G. Gill being the principal speakers.

Mrs. Evelyn Mitchell and Mr. Everett Warren and Miss Anne McCormick furnished delightful music.

Three or four outdoor meetings of the association are planned for this summer.

E. J. McCormick, Secretary.

Rock Island (Illinois) Loses William Hompquist

We are informed by S. F. Peterson, secretary of the Rock Island County Beekeepers' Association, that William Hompquist passed away on April 30. He was a good member of the Rock Island association and a beekeeper with about fifty colonies to his credit.

Second Meeting of Cass County Association (Michigan)

The second meeting of the Cass County Association on April 23 decided on a bee tour of the county. It is hoped that a speaker from Michigan College can be secured. Plans are being made to visit a number of apiaries in the county, including those of E. E. Mott & Son, of Glenwood, queen breeders; Arthur Dodd, of Niles, a producer of extracted honey, and Jesse Corwin, of Dowagiac, an extensive comb honey producer.

At the above meeting the business of renting bees was gone into fully. Five dollars seems to be the standard rental price to orchardists. Less bees are being rented this year because of the financial conditions. There is heavy bloom and more bees are needed, but the fruit men are passing up the chance of a full crop by failure to place bees in the orchards.

Membership of the association more than doubled at this meeting.

Leon C. Nieb,
Sec'y-Treasurer.

Kansas Federation All Day Meeting June 7

The Kansas Federation of Beekeepers Associations will hold an all-day meeting in Topeka, Kansas, June 7. It is hoped that all Kansas bee-

keepers will be present and that visitors from other states will be in attendance.

Kathleen Williams, Sec'y.

Arkansas Valley to Play Host on June 27

On June 27 the Arkansas Valley Beekeepers' Association will be hostess to the Kansas Federation of Beekeepers' Association. An interesting program is planned and all beekeepers should make an effort to attend.

Kathleen Williams, Secretary,
Kansas Federation.

Topeka Meeting June 7

The twenty-seventh annual meeting of Kansas beekeepers will be held at the home of George Pratt in Highland Park, Sunday, June 7. All beekeepers should attend. A good program has been prepared.

O. A. Keene,
President.

Florida Beekeeper Dies

Arthur F. Brown, of Daytona, Florida, a well known beekeeper, died very suddenly on May 2. Mr. Brown was unusually well informed about the beekeeping industry and was a very interesting personality. He had suffered severely with rheumatism for many years and of late had been confined to his couch much of the time. An observation hive in the window beside his couch helped him to pass many hours pleasantly which otherwise would have been very tedious.

The Field Editor of this magazine paid Mr. Brown a visit in the spring of 1929 and a story of the man and his ingenious devices was published in American Bee Journal in June, 1929.

Imports of Vegetable Wax

According to Government figures, the imports of vegetable wax into the United States during the period of 1928-30 averaged about 10,200,000 pounds, valued at \$2,090,000. Carnauba wax comprised about 70 per cent of the total and increased perceptibly in quantity. Beeswax suffers from competition, not only with vegetable wax imported from abroad but also with mineral wax manufactured in this country.

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E. E. Mott's Northern Bred Italian Queens Non-Swarming

See free list with testimonies. Cannot tell it here. Select untested, guaranteed purely mated or a free queen. Why buy hybrids? April-May, \$1.10; six, \$5.75. June 1, \$1.00; six, \$5.50; twelve, \$11.00; fifty, \$42.50. Select tested, \$2.00. Virgins, 50c; 12, \$5.00. Safe delivery and satisfaction guaranteed.

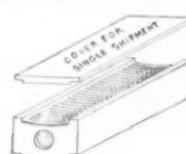
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Any number of two- and three-pound packages with queens. Two-pound packages, \$2.00; three-pound packages, \$2.50. Young mated queens, 35c each, any amount.

Satisfaction assured

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THE PINARD NAILLESS QUEEN BEE Shipping Cage

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Send for circular or samples.

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QUEENS THREE BANDED

Select untested. Guaranteed pure Italian queens. 50c each, one or one hundred.

THE CROWVILLE APIARIES
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RED STICK Packages and Nuclei

We guarantee: Purely mated select young queens—Liberal overweight—New light shipping cages—Delivery in good condition—No disease—Young pure Italian bees—No drones—Prompt shipment—First-class combs with nuclei—State health certificate—And, above all, satisfaction to the last degree.

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4-fr. Nuclei	4.00	3.75
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Queens included in above prices

Pure Italian Queens—1 to 4 50c
5 to 9 45c
10 or more 40c

Deduct 75c from above prices if packages or nuclei are wanted queenless. Parcel post shipment if desired.

We guarantee our packages and nuclei to be A No. 1 and first class in every respect, and assure you that you cannot go wrong if you place your order with us. Write for our circular and wire us your rush orders.

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Baton Rouge, Louisiana

HONEY PRODUCERS

Pack Honey As Other Modern Food Products Are Packed

Pack
Wrapped Comb Honey
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CORRUGATED CASES
and Save Money
Wrap Your Comb Honey
and See It Sell!



The modern merchant insists on displaying comb honey out of the case—why pack in obsolete wooden cases, when our illustrated corrugated cases will carry the honey better—cleaner—cheaper?

PRICE OF CASES

	Per 10	Per 100	Shipping Wt.
For 4 1/4 x 1 3/4	\$2.10	\$18.00	24 lbs.
For 4 1/4 x 1 1/2	2.00	17.50	22 lbs.
For 4x5	2.00	17.50	21 lbs.

Can be sent parcel post, postage extra

Sealing Glue for gluing the bottoms of cases. Two pounds will make a gallon of glue. Price: 1 lb. 30c; 5 lbs., \$1.25. Postage extra. Cheaper and better than water glass.

Gummed tape for sealing the tops of corrugated cases. Can be used for a variety of purposes; 2 1/2 inches wide, 600-foot rolls, 70c

PRICE OF WRAPPERS

All Cellophane Bag Wrappers

	Per 100	Per 500	Per M.
For 4 1/4 x 1 3/4	\$1.25	\$5.60	\$10.95

Combination Cellophane Bag Wrapper

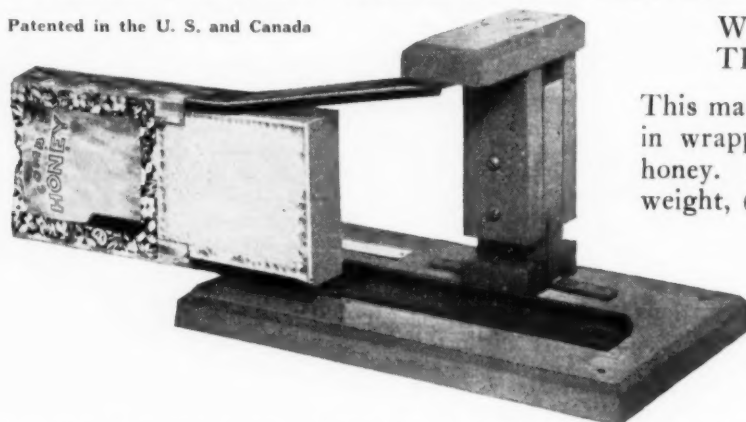
	Per 100	Per 500	Per M.
For 4x5	\$1.00	\$4.65	\$9.00
For 4 1/4 x 1 1/2	.95	4.40	8.50
For 4 1/4 x 1 3/4	.95	4.40	8.50

(Last size listed especially for Canadian beekeepers) Transportation charges prepaid to any address. Send for free samples; state size section used.

per roll. Shipping weight, 4 lbs. Postage extra. One roll will seal 300 cases.

COMB HONEY WRAPPING MACHINE

Patented in the U. S. and Canada



WRAP A
CASE OF
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SECTIONS
IN 4
MINUTES

WHAT IS YOUR
TIME WORTH ?

This machine will pay for itself in wrapping 25 cases of comb honey. Price, \$5.75. Shipping weight, 6 lbs. Postage extra.

**Labeling
Problems
Solved**

At last your labeling troubles are over. For three decades, every conceivable thing from starch and honey to rye flour has been recommended. Beekeepers everywhere have been looking for paste that will do their work and do it right. Our paste for tin can be used on either hot or cold containers. Think of the convenience of being able to label containers of warm honey!

TIN PASTE—for tin or glass

	Price	Shipping Wt.
1/4 gallon	\$.90	4 lbs.
1 gallon	2.10	14 lbs.

Guaranteed to stick labels on tin and keep them there

ELITE PASTE—for glass only

	Price	Shipping Wt.
1 lb.	\$.35	2 lbs.
3 lbs.	1.00	4 lbs.
5 lbs.	1.50	6 lbs.

The best paste for labeling on glass on the market. One pound will make one gallon of paste; add water only.

We Can Solve Your Labeling Problems!

C. W. AEPPLER COMPANY, Oconomowoc, Wisconsin

Honey packaging equipment and supplies exclusively

Crop and Market Report

Compiled by M. G. Dadant

For our June crop and market report, we asked reporters to answer the following questions:

1. Condition of bees?
2. Prospects for honey?
3. How much honey on hand?

The mild winter could have no other effect than bring the bees through in very satisfactory condition in most instances. In Maine the report comes that it has been a very hard winter, with heavy losses, but elsewhere in the New England states the bees are in excellent condition and range probably more than 100 per cent of normal. This condition prevails throughout all of the East and Southeast, Kentucky and Texas being perhaps the exceptions where bees are hardly up to normal conditions. Pennsylvania and Ohio report also bees perhaps a little backward on account of the cool weather at the time this is written.

Normal conditions prevail over practically the entire country otherwise, except that Utah and California report condition of bees below normal, with especially heavy losses in Utah. The same holds true in a few other parts of the intermountain territory.

Naturally, the warm weather has made for consumption of a large amount of stores, and the possibility of bees running short during the spring becomes apparent to many beekeepers. There may be losses from starvation on this account. All in all, however, we believe that the conditions of bees is somewhat better than it was a year ago, taking the country generally.

Prospects for Honey

New York, the New England states, and in fact the entire East, seems to be better situated than the general run this year, there being few reports that anything but normal conditions would prevail, and New York, Georgia, and Florida, are particularly reporting conditions which are far above last year. Evidently the drought of last season has been partially made up by late fall rains and by bountiful rains this year, which have put the honey plants in satisfactory condition. Apparently the white clover plants are not up to normal, but this is made up by the condition of other plants.

In the Central West the conditions are very spotted. Wherever beekeepers depend upon white clover entirely for their yield, the prospects are not 50 per cent of normal, because most of the white clover plants were killed last year. However, alsike and sweet clover are coming in in such large volume that they are materially tempering the shortage from white clover. Accordingly, many reporters are suggesting that conditions this year will be equal to normal, if not a little above. We believe, however, that for the Central West as a whole the conditions cannot approach over 75 per cent of normal conditions because of the fact that white clover is going to be lacking. The fine rains this spring, however, have done one thing, and that is, has brought out the young growth of white clover tremendously. The pastures seem to be filled with it. This clover, of course, will not yield much honey this year, but should we have a favorable summer and fall, the prospects for 1932 should be magnificent.

Wisconsin is one state which is not reporting satisfactory conditions as to honey prospects nor as to bees. In Michigan, conditions cannot be 100 per cent, and we doubt if they will be in many of the central western states.

In the plains area similar conditions prevail, the bees being in excellent shape, but prospects for the honey crop not being quite up to 100 per cent.

In the intermountain territory the backward weather and the lack of moisture has militated against the prospects being as good as usual. In fact, it is in the intermountain territory generally that we find reports agreeing that prospects are not over 60 to 85 per cent of

normal. Of course, late rains and satisfactory conditions from now on may alleviate the conditions somewhat.

The extreme Northwest appears satisfactory, but prospects for honey in California are even worse than last year. Orange opened early this year and the bees were not in a condition to gather it, so that probably not over one-third of a crop has been gathered. And the prospects for the future flows are anything but satisfactory. Several reports stated that they would be pleased if they got one-tenth of an ordinary crop.

In the Canadian provinces, Ontario and Quebec, prospects are satisfactory, the condition of bees probably being 90 per cent and honey plant conditions 100 per cent. Manitoba and Saskatchewan as well as the western provinces report about 100 per cent in both respects and a very heavy demand for package bees. Undoubtedly the ready sale for the honey and the slow sale for other farm products has encouraged the beekeepers to expand and new ones to start.

Honey on Hand

As conflicting as the reports are from one section of the country to the other, it does not appear that there is going to be a very large stock of honey held over next year, except in the intermountain territory. In this section many reporters state that they have as high as a carload of honey on hand, and one reporter five carloads.

By this we do not mean that there is no honey left in other sections of the country, because there are a number of large producers who are holding from 20 to 50 per cent of their crop. One section in Florida reports a very heavy holdover also. However, the pushing of local sales for honey, and the efforts made by individual beekeepers to get out and get their honey on the market in small containers, has helped the situation wonderfully, and we do not believe that there will be very much honey left on hand, except in the intermountain territory, when the new honey comes in. There will be exceptions, of course, in a considerable number of large beekeepers who are either holding their crop because they did not want to get out and push the sale by retail or because they are not satisfied with the price and expect better prices to prevail in the future. In any case, the amount of honey held over is not going to be a serious consideration. Even in the intermountain territory the demand seems to be developing a little better for carload sales. It is true, however, that in this section there is going to be a fairly heavy carryover.

All in all, the prospects do not seem to be up to normal for honey production this year as far as we can tell now. This is partly balanced by the fact, however, that we appear so far to be having a season where all the minor plants are yielding. In our own case here at Hamilton, bees have not robbed so far this year, which is a very unusual thing.

The condition which bodes for satisfaction is reported from the southeastern states, where the new honey is already coming in and is being sold just as fast as it is extracted. That section during the past three or four years seems to have been able to handle all of their honey satisfactorily. Naturally the price has been reduced, but the fact that they are able to dispose of their honey quickly and for cash is indeed something in their favor.

As a matter of fact, the entire South seems to be able to well handle themselves on the marketing of their honey. Texas has very little on hand from the past season and undoubtedly will be able to dispose of their present stock. It seems to be the white honey producers who are in a quandary as to what to do with their honey, and undoubtedly this is partly due to the fact that the export markets have been seriously hurt. It would seem that the southern folks are better eaters of honey than the northern ones, although we have always thought in the past that the cold weather was the time to sell honey because of its heat-producing value.

We Are Cash Buyers of Honey and Beeswax
Submit samples, and best prices, freight prepaid
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Buy and Sell All Grades Extracted Honey
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Bradstreet's Commercial Reports.

The BEEKEEPER'S EXCHANGE

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEES AND QUEENS

BUY your queens from Allen Latham, Norwichtown, Conn.

CHOICE, bright Italian queens that are a pleasure to work with and you will be proud to own. Requeen with stock that has been bred and selected in the North the past twenty-eight years for good wintering; hustlers, gentle, and fine color. One queen, \$1.00; two or more, 90c each; \$9.00 per dozen. Breeders, \$10.00. Emil W. Gutekunst, Colden, N. Y.

GOLDEN Italian queens, solid yellow to tip, the finest ever reared. Pure mating guaranteed. Untested, \$1.00; six for \$5.00. Selected tested, \$2.00. H. G. Karns, Green Bay, Va., care State Forest.

BASSETT'S queens and package bees; leather-colored, three-banded Italians. One 2-lb. package with queen, \$2.50; five or more, \$2.00 each. One 3-lb. package with queen, \$3.00; five or more, \$2.60 each. Young Italian queens, 50 cents each, any number. Guaranteed no disease. Safe arrival and satisfaction in every way. I X I Apiaries, C. Bassett, Prop., Ripon, Calif.

FOR SALE—Golden Italian queens, noted for their gentleness and honey gathering. None better. My prices the rest of the season, 50c each, any amount. Satisfaction guaranteed in U. S. and Canada. E. A. Simmons Apiaries, Greenville, Ala.

SELECTED untested queens, 40c each; \$4.50 per dozen. N. B. Smith & Co., Calhoun, Alabama.

BRIGHT Italian queens and packages: One untested queen, 85c; two to one hundred at 75c each. Write for booklet and package prices. Hailey's Apiaries, Hughes Springs, Texas.

ITALIAN QUEENS—The kind you will admire. Purely mated. Any number, 40c each by return mail or money refunded. Cotton Belt Apiaries, Paris, Texas.

CAUCASIAN QUEENS—After June 1: One, 65c; ten, \$6.00; twenty-five or more, 50c each. Safe arrival and satisfaction. Tillery Bros., R. 6, Greenville, Ala.

SPECIAL for June and July: Golden and three-banded queens. Select untested, one to twelve, 80c each; 12 to 25, 75c; 25 to 100, 65c each. Select tested, \$1.50 each. Carolina Bee Co., George Elmo Curtis, Mgr., Kenansville, N. C.

BRIGHT three-banded or golden Italian queens, the very best, balance of season, 50 cents each; 50 to 100 lots, 45c. Taylor Apiaries, Luverne, Ala.

HERE THEY ARE—Ruschill's honey-go-getting lobred Italians, minus a lot of hot air. Select untested queens, 60 cents each. Charles L. Ruschill, Colfax, Iowa.

ITALIAN QUEENS—Gentle and thrifty, as good as can be raised, 50c each; over 25, 45c each. Satisfaction guaranteed. Health certificate. Two pounds bees, \$2.25; three pounds, \$3.00, with queen. Homer W. Richard, 1411 Champnolle, El Dorado, Ark.

GOLDEN Italian queens producing golden bees; very gentle, good honey gatherers. Health certificate with queens. Tested, \$1.25; select tested, \$2.00. Untested: One, \$1.00; two to five, 90c each; six to eleven, 80c each; twelve or more, 70c each. Untested July to November, 80c each; six, \$4.20; twelve or more, 60c each. D. T. Gaster, R. 2, Randleman, N. C.

REACROFT—Select Italian queens: One, 75c; five, \$3.50; ten, \$6.50. Satisfaction guaranteed. Geo. H. Rea, Reynoldsville, Pa.

PURE ITALIAN BEES—Two-pound package with queen, \$2.50. Select untested queen, \$1.00; select tested queen, \$1.25. J. Allen, Catherine, Ala.

DAY'S golden Italian queens balance of season, any number, 50c each. To meet competition, the price had to be cut, but they are still the big, bright, hustling kind, ones that will please you to look at and add profits to your income. They are shipped with a guarantee to be second to none. Two-pound packages or two-frame nuclei, \$2.25 each. E. F. Day, Honoraville, Ala.

IF you want a few good queens, I have them for you at \$1.00 each. Pollinating packages of bees in season. Jes Dalton, Kenner, La.

IF you want gentle bees, good honey gatherers, my strain of golden Italians will please you. Prices: One untested, \$1.00; two to five, 90c each; six to eleven, 80c each; twelve to forty-nine, 70c each; fifty or more, 65c each. Tested, \$1.25; select tested, \$2.00. After July 1, deduct 10c per queen from all the above prices on untested. Tested and select tested will remain the same. Circulars on request. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

NEW ENGLAND QUEENS—Hardy, vigorous, production-bred Italians, June-September, untested, \$1.00. Roland T. Bousley, Rowley, Mass.

WARD'S bright Italian queens, \$1.00 each; six, 90c; twelve or more, 75c. State inspected. Guaranteed satisfaction. C. W. Ward, R. 1, LeRoy, Kansas.

FOR SALE

OLD BOOKS on bees for sale. Write us for list and prices. John F. Hawkins, P. O. Box 203, Chester, Pa.

BARGAIN LIST—Every item in good, usable condition. Priced to sell quickly. Reason for selling, no longer listed in our catalog. Brushes, cartons, glass jars, lithographed pails, smokers, veils, box seats, feeders, section presses, shipping cases, foundation, queen cages, etc. Write for free list. G. B. Lewis Company, Watertown, Wis.

CALAMITY prices on our products. Honey Maple table syrup, finest table syrup on earth. Five years making it right. Only \$1.00 per gallon in 5-gallon tins; \$4.00 per case of 24 pints. Also 24 1-lb. honey and 24 ½-pint 100 per cent pure maple syrup same price for 30 days only. Write for our new circulars, enclosing 10c to pay postage on samples. Griswold Honey Co., Madison, Ohio, U. S. A.

FOR SALE—Cheap: Used honey cans, two to case, in good condition. Limited quantity. E. Rau & Co., 110 N. Franklin Street, Chicago, Ill.

FOR SALE—Device to place foundation very fast in split sections, in filled supers. Price, \$1.00. F. C. Bennett, inventor and manufacturer, Jamestown, N. Dak.

P. R. squab homers for sale or trade for bees and supplies; \$2.00 a pair. A. Webb, 12611 Wilfred Ave., Detroit, Mich.

FOR SALE—Twenty hives of bees in fine condition. A. Doermann, 2554 Grove St., Blue Island, Ill.

FOR SALE—Good used ten-frame equipment. All kinds of special sawing done. Hives, supers, frames, etc., made to your order. Complete line of comb honey equip-

ment. Also the Kruse ventilated comb honey super. Kruse & Killion, Paris, Ill.

FOR SALE—Two 30-gal. galvanized honey tanks, fine shape, \$5.00; five 1-tier and eight 2-tier nailed shipping cases, two carriers, \$6.00; fifteen 1-gal. and six 5-lb. broad-shoulder post cans, \$2.40; ten lbs. thin brood, 5x17½, \$6.00; one book, "The Honey Bee," \$2.25; Lewis foundation fastener, \$2.50; Lewis section folder, \$2.75. J. J. Fox, Wayland, Mo.

275 DOUBLE 8-FRAME colonies in good shape, in excellent alfalfa and sweet clover location. Equipment for producing extracted honey. Guaranteed no disease. Mrs. Harvey Whitacre, Saratoga, Wyo.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—All grades, and quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

WHITE Clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Delicious palmetto honey in barrels; also heavy bodied amber. P. W. Sowinski, Fort Pierce, Fla.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Illinois.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 West Huron St., Chicago, Ill.

FOR SALE—Sweet clover extracted honey; quality and body fine. Thomas Atkinson, Route 5, Omaha, Neb.

LOWER prices on comb and extracted honey. Write H. G. Quirin, Bellevue, Ohio.

STURDEVANT'S CLOVER HONEY—Largely from Trifolium Repens, with alfalfa and sweet clover. Comb honey, white, white wax; 14-, 12-, 10-ounce cases separately. Unwrapped or cellophane wrapped. Bids invited. Sample sent for approval if bid favorable. Extracted, same quality, packed 2½-, 5-, 10-, 60-pound tins. No labels attached unless ordered. Associated Apiarists, J. H. Sturdevant, Manager, St. Paul, Neb.

FOR SALE—100% pure maple syrup, 100% pure country sorghum, comb and extracted honey. C. J. Morrison, South Bend, Indiana, 1235 Lincoln Way West.

HONEY AND BEESWAX WANTED

WANTED—Shipments of old comb and cap-pings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—Western states water-white and white honey in car lots. Send type samples. Advise quantity, price and point of shipment. E. F. Lane & Son, 325 Davis St., San Francisco, Calif.

WANTED

WANTED—Eight-frame or larger extractor. Must be in good shape and reasonable. J. B. Hohmann, Spechts Ferry, Iowa.

TO TRADE—Package bees for 1930 white extracted honey. A. W. Bulay, Livingston, Texas.

WANTED—Ambitions and energetic beekeeper with some capital, to manage, assume an interest, or operate on shares, a very large and flourishing outfit. Address T., care American Bee Journal.

SUPPLIES

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets 25c. Postage 3c per 1,000. Superior Honey Co., Ogden, Utah.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

MAKE queen introduction sure. One Saffin cage by mail, 25c; five for \$1.00. Allen Latham, Norwichtown, Conn.

COMB FOUNDATION—Note these low prices on 20-lb. lots: Medium brood, 54c; thin section, 60 cents. Can furnish the new non-sagging foundation. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

FOR SALE—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices. Hamilton Bee Supply Co., Almont, Mich.

REDUCED PRICES—Medium brood foundation, 44c pound, any quantity; light brood, 47c; thin super, 52c. Freight prepaid anywhere in U. S. A. in quantity 100 pounds. Superior Honey Co., 814 East Sixty-first St., Los Angeles, Calif.

MISCELLANEOUS

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, \$2.55 (10/6). The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

PLANS FOR POULTRY HOUSES—150 illustrations. Secret of getting winter eggs. You need this book. Write for free offer and sample copy of Inland Poultry Journal, 51 Cord Bldg., Indianapolis, Ind.

MARBLEBOARD BINDER—For back copies of the American Bee Journal. Will hold two years. Keeps your magazines in shape for ready reference. Price only 75c, postpaid. American Bee Journal, Hamilton, Ill.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

VITEX, "Negundo Incisa." The only nectar producing vitex listed by the Bureau of Foreign Plant Introduction. 24- to 36-inch trees, 50c, prepaid. Joe Stallsmith, Galena, Kansas.

HONEY LABELS and printing. Catalog and samples free. Correspondence solicited. Traders Printing Company, Springfield, Mo.

Institute Report

The annual report of the American Honey Institute is out. Although most of the activities have been reported in the bee magazines at one time or another, it is only when one reads the report as a whole that he appreciates the amount of work done and the number of contacts made. We would suggest that anyone who is not already fully acquainted with the work of the Institute write for a copy of the report and see for himself just what the Institute is doing. The same sheet also carries the outline of the plan for the next Honey Week. Suggestions are made for cooperation on the part of the beekeeper in his own community. Write to American Honey Institute, 225 Wimmer Bldg., Indianapolis, Indiana.

Honey to France Must Show Point of Origin

According to a report from Assistant Trade Commissioner Eugene A. Masuret, Paris, honey from abroad must bear an indication of its origin on importation, and this notice must remain when it is offered for sale. This is by law of March 26, 1931, published in the French official journal.

In the case of American honey imported into France, the origin should be indicated in French by the words "Importe des Etats-Unis d'Amerique." This marking may be applied in any manner, but must be clearly legible and indelible.

Buel A. Williamson, Dist. Mgr., Dept. of Com., Des Moines, Ia.

An Interesting Bulletin

There has been a steady decline in the price of package bees for the past four years. At present the prices asked by the shippers are less than half the price for which they sold in 1922. With declining prices have come better cages, better feeding and more care on the part of the express companies, so that losses now are slight compared to a few years ago.

To enable the beekeepers of the province to make the most of the opportunity, the Manitoba Department of Agriculture has recently published extension bulletin 97, entitled "Package Bees," by Prof. A. V. Mitchener. While this bulletin is intended especially to give the buyer

the exact information he needs to secure and care for the bees, it contains much information of general interest also.

There are several charts showing the duration of the honeyflow, which comes in July and August. It is interesting to note that the average yield of honey from package bees secured before May 1 for a five-year period is 167 pounds for two-pound packages. Packages received after May 1 have given a much lower average return.

Copies of the bulletin can be secured from the Department of Agriculture at Winnipeg for 10 cents each.

STATEMENT OF OWNERSHIP

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Illinois, for April 1, 1931.

STATE OF ILLINOIS, } ss.
County of Hancock, }

Before me, a notary public in and for the state and county aforesaid, personally appeared M. G. Dadant, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers American Bee Journal, Hamilton, Ill.

Editor, C. P. Dadant, Hamilton, Ill.

Managing editor, G. H. Cale, Hamilton, Ill.

Business manager, M. G. Dadant, Hamilton, Ill.

2. That owners are:

C. P. Dadant, Hamilton, Ill.

H. C. Dadant, Hamilton, Ill.

V. M. Dadant, Hamilton, Ill.

C. S. Dadant, Hamilton, Ill.

L. C. Dadant, Hamilton, Ill.

M. G. Dadant, Hamilton, Ill.

Leon Saugier, Hamilton, Ill.

Joseph Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding one per cent or more of the total amount of bonds, mortgages or other securities are: None.

(Signed) M. G. DADANT.

Business Manager American Bee Journal.

Sworn to and subscribed before me this fourth day of April, 1931.

MINNIE S. KING,

Notary Public.

My commission expires Nov. 19, 1933.

Iowa Queens

The best Italian queens that can be bought, and at new low prices.

Untested \$.80
Tested 1.25

Write for prices on breeding queens

ORIN STANLEY
Lamoni - - - - Iowa

MOUNTAIN GRAY CAUCASIAN QUEENS**PROMPT DELIVERY**

Our bees are beautiful and very gentle and fast breeders in building up in spring. One of our queens holds the high record in comb honey production. You will not go wrong in buying queens from record-producing stock.

Queens, select tested, one \$4.00; tested, one, \$3.00. Untested, one, \$1.25; six, \$7.00; twelve, \$13.50; thirteen to twenty-four, each, 90c; twenty-five and over, 81c. All queens postpaid and guaranteed to reach you in good condition and be satisfactory. Health certificate with each shipment.

BOLLING BEE COMPANY, BOLLING, ALABAMA
TELEGRAPH AND SHIPPING POINT, BOLLING, ALA.

A Bee Paradise

Minnesota, North Dakota, and Montana, Idaho, Washington and Oregon are developing rapidly in beekeeping and honey production. Thousands of acres of sweet clover and other valuable honey plants promote high yield and fine quality. Much good territory remains to be occupied.

Beekeeping may be developed profitably as a sideline with diversified farming and livestock or as a specialized project. Conditions are equally favorable for bees and livestock. The most valuable feed and forage crops are easily grown and production cost is low.

Beef cattle, dairying, sheep, lambs and wool are all produced on a low cost basis on low priced land. Among the most favorable localities for bees and livestock are the Red River Valley, Milk River Valley, Lower Yellowstone Valley, and Valier Project.

Write for free book on either state and detailed information about bee raising and farming opportunities. Low Homeseekers' Round Trip Excursion Rates.

E. C. Leedy, Dept. J.

GREAT NORTHERN RAILWAY
ST. PAUL, MINNESOTA

Select Young Italian Queens

Prompt Service No Disease Satisfaction Assured

For every 10 queens we give you one extra queen free

Beautiful Italians — All young 1931 stock
50c each — 50 or more, 45c each

P. M. WILLIAMS, Mount Willing, Alabama

TIN CANS AND PAILS

Best Quality on the Market

In Strong Dust-Proof Cartons—Pails with Sure-on Bails.

	Shipment from Grand Rapids			From Chicago or Wheeling, W. Va.		
	Per 100	Per 500	Per 1000	Per 100	Per 500	Per 1000
2½-pound cans						
100 in carton	\$3.75	\$17.75	\$34.00	\$3.25	\$15.75	\$30.80
5-pound pails						
50 in carton	\$6.50	\$31.00	\$60.00	\$5.75	\$27.50	\$53.75
10-pound pails						
50 in carton	\$9.50	\$45.00	\$88.00	\$8.00	\$39.25	\$76.75

	Shipment from Grand Rapids.		From Chicago or Wheeling, W. Va.		
	1 box	10 boxes	10 boxes	50 boxes	100 boxes
60-pound cans					
2 in wood box	\$1.10	\$10.00	\$9.00	\$43.50	\$85.00
	Per crate \$15.00		Per crate \$17.50		
50 bulk crate					

A. G. WOODMAN CO., Grand Rapids, Mich.

SHAW'S BEES & QUEENS

*Are Seldom Equalled
and Never Surpassed*

They are just plain old three-banded Italians and they are pleasing hundreds of satisfied customers in U. S. A. and Canada. I'm sure they will make a regular customer of you if it is honey you are after, and not beauty.

They are shipped in strong, light cages. Ten to twenty per cent overweight when shipped and I have not had enough losses to file claim in the past two years.

No disease here—never has been. And as to service, no order has ever been on my books 72 hours after they are booked to go. I assume all losses, giving prompt replacement or refund your money.

PRICES

2-lb. Package with queen \$2.25
3-lb. Package with queen 3.00

Queens, 30 cents

Tested queens, 50 cents more

A. E. SHAW
SHANNON, MISS.

50

CENTS each QUEEN
for good three-band
untested
20 for \$9.00
D. W. HOWELL
Shellman, Georgia

Queens

Three-Band Italians

Super quality at lowest prices

Are they good? Ask my customers, they will tell you.

One . . 45c

10 . . 42c ea.

12 - 100 . . 40c ea.

Safe arrival and satisfaction guaranteed

N. Forehand
DeFuniak Florida

Morrison's Northern Italian Queens

Untested 60c each
Tested \$1.00 each
Satisfaction guaranteed
Geo. Morrison, Cloverdale, O.

THOUSANDS

of beekeepers over the U. S. and Canada have discovered that the safest and most economical way to produce a profitable crop is to have all colonies headed with L. L. FOREHAND'S QUEENS. Queen rearing is not just a money making proposition with L. L. FOREHAND. It's a business where we are constantly improving our stock, and each season you get a better value for your money. The queens we are shipping this season are better than last, because we have one more year of experience to our credit of twenty-odd years of practical commercial queen-rearing. If there were a way of raising a better queen than we are offering, L. L. FOREHAND would be raising them. We are not satisfied with selling you a good queen; we want you to have queens better than any you have ever had in your yards — ones that you will be proud of; ones you will take pleasure in working with; ones that will make you a greater profit and stack up more pounds of honey than you thought possible to produce.

Select untested queens, 50c each; \$22.50 for fifty; \$40.00 per hundred

2-lb. pkgs. with sel. untested queen, \$2.00 each; 3-lb. pkgs. with select unt. queen, \$2.50 each

We guarantee every queen to reach you alive and in good condition, to be purely mated and to give perfect satisfaction. Bees are covered by the same guarantee.

Write for circular. If wanted in larger quantities, will quote you special price.

L. L. FOREHAND APIARIES, JESUP, GA.

Summer Prices

We will furnish any number of package bees and queens fresh from our yards, as follows:

2-lb. package with select queen, \$2.00

3-lb. package with select queen, 2.50

Select young queens, each 50c

Five or more queens, each 40c

For TESTED queens, add 50c to above price

Pure strain Italian bees, thrifty and gentle.

Can be shipped within 24 hours after receipt of your order.

Every shipment GUARANTEED to satisfy.

Citronelle Bee Co., Inc., Citronelle, Alabama

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

Reports coming to this office indicate some slashing of appropriations for the bee inspection work in several states. With the increased demand for more thorough inspection, and less funds to work with, the inspectors will have a hard row to hoe.

Sheppard Retires

Our good friend W. J. Sheppard, for many years provincial apiarist of British Columbia, having reached the age of 70 years, has retired from public service with a pension. Sheppard has been prominent in the beekeeping field for many years and has brought a number of his methods to popular attention. The Kootenay case and the top-entrance hive are examples.

When I visited Mr. Sheppard he was living at Nelson and had one of the most interesting private flower gardens that I have ever seen. I have seen larger and more elaborate ones where there was a large outlay of funds, with gardeners in charge, but Sheppard's garden was his hobby and received his personal attention. With seven hundred named varieties of plants, it was worth going a long way to see.

Bees Are Booming

O. G. Borton, of South Dakota, writes that the bees have filled the hives with dandelion honey, which will save a lot of spring feeding. April is not usually a month when the bees store much honey in Dakota, but this year was an exception. He wrote that they were building cells the first week in May and swarming was in prospect. Perhaps later cold waves and chilly winds may have changed the early prospect. Similar reports of early brood rearing come from many places this spring.

Those Native Bees

Some time ago there was a rather spirited argument in the bee magazines as to whether the honeybee was native to America. One writer contended that it came from Europe with the early colonists, while others referred to early references to honey and wax as evidence that the bees were here when the white men came.

Now A. C. Burrill, of Missouri Museum, writes an interesting letter to call attention to a new book, "The History of the Maya," by Thomas Gann and J. Eric Thompson. The book contains interesting references to the making of candles and the trade in honey by these early people. The fact is clearly established, however, that the Mayas had domesticated the stingless bees native to the region, which they kept in hollow logs with the ends closed with mud. A ceremonial drink was made by mixing honey with shavings of bark from a native tree. Beekeeping is shown to have been an important industry with the Maya.

So far no one has come forward with proof to indicate that any of the early references to honey and wax in America referred to the product of the honeybee. Stingless bees are common throughout the American tropics and apparently all these early writers referred to them.

Counting the Bees

I have seen a lot of guessing contests used as stimulants to sales—guessing the number of beans in a glass jar or the number of pounds in a big lump of coal—but it remained for Lewis Kones, of Massachusetts, to use an observation hive and let folks guess as to the number of bees. Such a contest in a big store ought to create a lot of interest. (Has been done in Seattle, too.)

Studies in Diet

The medical fraternity is making some rather startling announcements from time to time about the effect of various kinds of food on human health. The discovery that liver was good for those suffering from some ailments resulted in a great demand for liver. The announcement that carrots were rich in some of the vitamins made it necessary for vegetable growers to plant a greatly increased acreage of carrots to meet the

demand. The latest to appear in the papers quoting from a medical authority is the statement that onions have radio-active properties when eaten raw which prevent or possibly cure cancer. The statement is made that among certain Russian Jews who live principally on bread and raw onions cancer is unknown. We are still waiting for the discovery of the peculiar properties of honey which will give it universal demand.

It is interesting to note that the California carrot growers' publicity committee has a three months' broadcasting campaign on over a New York City station, with programs three times each week.

Top Entrances Again

The comments about the top-entrance hive are getting interesting. Several have advocated them and now the objections are coming to the front. New methods always have to prove themselves. The British Columbia middle entrance was devised to meet the objections such as Braithwaite brings out on page 274. Anyway there will be a lot of them tried this season.

California

You can never squelch a man from California. They are the greatest bunch of boosters that ever escaped from Iowa and Illinois. There is not much out there but sunshine, but they talk so much about that that they have made all the world believe that everything worth while centers in the Golden State. I don't know how long McCain has been out there, but he is as bad as the rest of them already. (Page 279.)

Honey in Glass

Wilder makes some good points in favor of putting up chunk honey in wide-mouth glass jars (page 283). One thing he leaves us to figure out for ourselves is what to do with it when it granulates on the grocers' shelves. If it were not for this problem, chunk honey in glass would be the ideal way to put up our product. Those fellows down south in the tupelo region are in luck, since tupelo honey gives little trouble on that account. The fact is that commercial bottlers often pay a premium for tupelo honey to blend with that from other sources, because it retards the granulation of the whole.

Dry Weather

Reports coming to us indicate that there are some large areas which are yet seriously deficient in moisture. Letters from some sections where drouth was most severe last summer tell of good rains, but the clover was so completely dried out that little hope is felt for a honey crop this year. The combination of a severe drouth with a business depression makes hard going for many of our readers.

Strained Honey

The public is slow to learn of changes in industries with which it is not closely acquainted. Newspaper clippings and other references to honey passing across my desk usually mention "strained honey," as though the beekeepers still mashed up the combs and strained the honey through a cloth as in the old days. Extracted honey has been on the market for many years, yet few people understand how it is removed from the combs or what the word "extracted" means.

The International

The International beekeeping conference held at Cairo, Egypt, in February seems to have been a most interesting occasion. It is reported that representatives of 514 societies interested in beekeeping were present. There were also horticulturists, entomologists, and representatives of numerous agricultural institutions. Thus ancient Egypt, where progress in arts and sciences developed so many centuries ago, now takes the lead in organizing international cooperation among the beekeepers of the world.

Frank C. Pellett.